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TREATMENT

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DIGEST OF TREATMENT

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OBSERVATIONS ON MORTALITY FROM ACUTE APPENDICITIS AT A UNIVERSITY HOSPITAL, 1916 TO 1946

By Rudolph N. Schullinger, M.D., New York, N. Y.

Condensed from the Annals of Surgery

THE present study of acute appendicitis mortality at Presbyterian Hospital, New York, is a continuation of a previous report, and now comprises a 30-year period.

From 1916 to 1946 there were 5,405 cases of acute appendicitis and its associated lesions. The total death rate of all cases was 3.55%. During the last 5-year period, the death rate was 1.37%.

There were 2,855 cases of simple acute appendicitis with 14 deaths resulting in a fatality rate of 0.49%. For the past 5 years the rate was 0.39%.

There were 26 deaths in 1,262 cases of acute appendicitis with local peritonitis. The mortality rate was 2.06%. The last 5-year period carried a 1.35% mortality rate.

The 81 deaths in 896 cases of acute appendicitis with peritoneal abscess produced a mortality of 9.04%. The last 5-year interval registers a mortality of 4.16%.

An acute diffuse peritonitis was revealed at the time of operation in 452 cases. There were 70 deaths, producing a mortality rate of 15.48%. The 5-year pe-

riod showed a mortality rate of 4.08%.

Of the 34 cases of acute appendicitis with acute progressive fibrinopurulent peritonitis all but 6 died with a mortality rate of 82.35%. There was only 1 survival among the 5 cases during the last 5-year period.

The diminution in our appendicitis fatalities is in keeping with similar reports from other hospitals and clinics.

There are numerous reasons for the nationwide reduction in appendicitis deaths. The coordinated plans on the part of the public health service combined with the sponsorship of local medical societies, industries, insurance companies, schools, universities, and municipal authorities have served to render the laity conscious of 2 serious dangers of appendicitis, namely, delay and purgation. In our own series we find that there is a slight but definite reduction of our peritonitis cases, even though our annual incidence of acute appendicitis remains about the same. This suggests that the population in our area has be-

come appendicitis conscious, or that the physicians, serving this region, are recognizing and diagnosing the disease process early and promptly.

Another factor in reducing appendicitis mortality has been the more thorough teaching and training of our residents.

The past decade has witnessed great advances in the care and treatment of the sicker type of patient, for instance, preoperative preparation, appreciation of fluid balance requirements, deficiency states such as anemia and hypoproteinemia, more liberal use of plasma, blood, oxygen therapy, gastro-intestinal decompression, means of anticipating and controlling thrombophlebitis, and early ambulation. Of great importance has been the marked advancement in anesthesia and its skillful administration. There has been a steady improvement in operative technic, with fewer technical errors and blunders, together with the more frequent use of the McBurney incision.

The administration of antibacterial agents has been a further factor in the diminution of appendicitis fatalities.

We are also impressed by the causes of death during the last 5-year period of our study, in that our improved methods of therapy appear to have diminished the fatalities from peri-

tonitis, general sepsis, pneumonia and embolism. The chief factors in our recent deaths are: Advanced age, hypertensive cardiovascular disease, obesity, diabetes, atypical history, wrong diagnosis, and technical errors such as misplaced incisions, difficulty in removing the appendix, and lack of understanding the indications for drainage. Other factors were improper choice of anesthetic, failure to recognize a latent thrombophlebitis and inability to control distension.

Perhaps the most important of all the factors responsible for the lowered mortality rate of acute appendicitis are the sober judgment, skill, and experience of the surgeon combined with his observance of fundamental precepts and sound surgical principles.

We believe in prompt surgical intervention in the management of acute appendicitis. When necessary, our patients may undergo several hours of preoperative preparation, including resuscitative measures and restoration of fluid balance.

The writer is disposed to favor spinal anesthesia, whenever it is considered safe, because of complete wound relaxation and relatively greater ease in exposing the site of the pathology without undue retractor trauma.

The McBurney incision is extensively employed at this in-

stitution, but if circumstances indicate the advisability of another approach, we do not hesitate to do so.

The intelligent use of retractors is often overlooked, resulting in unnecessary roughness or trauma to the wound. Since most of these wounds are contaminated by reason of the infected appendix, the danger of intramural infection becomes increasingly greater by overzealous retraction. Retractors should be inserted and placed with great care and exactness, and the assistant should be warned frequently to exert minimal force with adequate exposure.

The appendix should be sought with careful manipulation and with the least possible disturbance to the surrounding viscera. It may be necessary at times to divide the lateral peritoneal reflection of the cecum in order to immobilize a high retrocolic appendix. Division of a thick, friable, edematous meso-appendix must be executed with great care because, if this structure tears, the blood vessels retract, and at times it is almost impossible to control bleeding. We prefer to invert the appendix stump but simple ligation is proper, particularly when the adjacent cecal wall is thickened and friable. We strongly condemn combined ligation and inversion

of any appendix stump.

If it is decided to drain a case of local peritonitis, it is better to insert 1 or 2 simple Penrose or cigarette drains. These should be removed early, depending of course upon the general condition of the patient, the temperature curve, the amount and character of the discharge, the bacteriology of the pus, and the region and anatomic peculiarities of the area drained. For primary appendiceal abscess, it is preferable to introduce a tampon, with gauze packs or cigarette drains placed within it. This permits free drainage. Sometimes we introduce a small rubber tube or catheter along the lateral aspect of the tampon for the purpose of subsequent irrigations. It is extremely important never to insert a drain across a viscus if it can be avoided.

If, in the removal of a perforated, gangrenous appendix, the surgeon decides against intraperitoneal drainage, it is wise to insert a small drain to the muscle or peritoneal layer, because such wounds are almost certainly heavily contaminated.

For teaching purposes, and particularly for interns and residents, and for younger members of the surgical staffs, the indications for drainage are presented.

Presence of an abscess.

Necrotic or compromised

tissue remaining in the operative field.

Inability or inadvisability to remove the appendix.

Gross contamination from:
perforation of appendix
break in technic.

Extensive exposure of retroperitoneal tissue.

Uncontrolled bleeding.

Insecure ligation or closure of the appendiceal stump.

Severe operative trauma.

In addition, there may be other factors which may enter into the decision to drain, namely, age, cachexia, obesity, diabetes, and other constitutional diseases. Application of these principles governing drainage will contribute to a substantial reduction of deaths, especially in acute appendicitis with local peritonitis.

In our institution, we believe a further diminution in mortality can be effected as follows:

Earlier recognition of atypical cases.

Require the attending surgeon, on call, 1) to examine all cases of uncertain or equivocal diagnosis, 2) to scrub with the resident or assistant resident if the patient is

obese, is 45 years or over, gives a 48-hour history or longer, presents a doubtful diagnosis.

Careful planning with reference to operative preparation and approach, proper choice of anesthesia, and postoperative care.

Anticipation and prevention of complications, particularly thrombophlebitis, severe distention, and spread of intra-abdominal infection.

Recognition of indications for drainage.

Unceasing efforts to improve operative technic.

Close teamwork with the medical staff in any case presenting non-surgical complications.

Continued study of experimental peritonitis.

Early ambulation in selected cases.

Annual review, at surgical staff conference, of acute appendicitis, together with a discussion of complications, methods of treatment, death analysis, and suggestions in formulating our policy for the ensuing year.

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LKF—CHS

¶ An intra-hospital radio system, complete with broadcasting studio and a transcription library of almost 30,000 recordings, was built at the Crile Veterans Administration hospital in Cleveland, O., with money left over from a fund-raising drive held by the Cleveland Press.
—Veterans Administration Release.

THE RESULTS OF THE MEDICAL TREATMENT OF PEPTIC ULCER

By Trygve Kahrs, M.D., and August Schrumph, M.D., Porsgrunn, Norway

Condensed from the Review of Gastroenterology

OUR material represents 220 patients treated in St. Joseph's Hospital, Porsgrunn from January 1, 1938, to the end of 1942. The observation period, which ends July 1, 1946, is a minimum of $3\frac{1}{2}$ years and a maximum of $8\frac{1}{2}$ years.

In treating our patients, we have had the following aims: 1) to counteract or to cure the symptoms of dyspepsia, 2) to stimulate the healing of the ulcer, 3) to prevent relapses. The use of adequate diet and alkalis during bed rest serve to achieve the first two purposes. Concerning the regimen, from 1938 to the middle of 1939 it was a strict one resembling the cure of Lenhartz and Petren. The diet used later consists of milk, toasted bread, gruel or barley soup, meat- and fishballs, boiled fish, mashed potatoes, porridge of wheat or semolina, fruit jellies and stewed fruit. Adequate amounts of Vitamins A, B, and C are supplied. In case of dyspeptic conditions we conventionally give alkalis, usually 15% of superoxide of magnesium in oxide of magnesium. The patients are confined to bed, but those who are undergoing a regular cure are per-

mitted to wash themselves morning and evening. Patients suffering from acute bleeding are generally not allowed to leave their beds, before the bleeding has stopped. The cure has been of the same duration, viz., 28 days in the period under consideration. Only in such rare cases where dyspeptic troubles have persisted at the end of the cure, and specially when the ulcer is still visible on x-ray examination, the cure has been prolonged 1-3 weeks. The results here attained apparently do not diverge from what we can gain by using the older fasting-cure.

If relapses are to be avoided, reasonable behavior after leaving the hospital is of the greatest importance. The patients get detailed instructions as to the diet, and a schedule to illustrate it. They are instructed to avoid alcohol and tobacco, and smoking on an empty stomach is especially forbidden. Also they are informed not to fuss at their work, but to try to adopt an even tempo. Finally they have to keep an exact diet for at least half a year, which has to be prolonged, if any dyspeptic symptoms persist. The chronic course

of the disease is explained. In case of constipation, mild, mostly saline cathartics are given.

Sixty-five of the total are fully recovered after cure. This represents a percentage of cure 29.6.

Most of the patients have been followed by x-ray; at the end of the cure. Regarding the chronic ulcers, 169 of 172 in all have been re-examined roentgenologically. They are distributed as follows:

Ulcer completely or almost completely healed	96
Bulbar deformity at the end of the cure	42
Persisting ulcer or stenosis..	31

Of the 42 patients showing a deformed bulbous, 40 became free from symptoms on discharge, while only 1 case suffered from indigestion when leaving the hospital. Thus, the deformed bulbous represents no reduced chance of later recovery as compared with other cases of chronic ulcer. There is, however, a greater percentage of operated patients in this group than in the rest of the material.

Concerning the 31 patients with persisting ulcer or stenosis at the end of the cure, 29 were free from symptoms during the cure, while one man did not get rid of the dyspepsia, and was transferred directly for operation. Taking the persistence of ulcer into consideration, we find

a smaller percentage of improved patients and a greater percentage of uncured cases compared with those suffering from a bulbar deformity.

If the results of the treatment are examined in relation to the duration of the preceding symptoms, the material shows no greater chance for a recovery after cure in cases with preceding symptoms of short duration, than in cases where the symptoms have lasted for a long time.

Our series have further been analyzed regarding the possibility of different results from rural and town areas. It is constantly stated in older works, that town people have a more serious ulcer prognosis than people from rural areas, who are supposed to live under less nervous strain. If we consider the percentage of healed ulcers, it is 10% higher for patients from rural areas than for town-dwellers.

In the series cured or cured with relapse, the result is almost twice as good in cases where bleeding has occurred as compared with ulcers without bleeding. It is a well established fact, that no ulcer can be found by x-ray examination, single or repeated, in a good number of bleeding cases. This is generally believed to be consequence of a more superficial localization of ulcer, in many cases represented

only by erosions of the mucosa.

The 3 common risks in medical treatment: bleeding, perforation and cancer development are of minor importance in our follow-up study. Obviously there is no reason why these risks should have greater influence upon the indication for operative treatment than necessary.

On the other hand, it is important to consider the immediate and late results of operative treatment. Three patients in our series died as a consequence of operation. This represents a death rate of 1.4% in relation to the total number of ulcers, but 7% of cases operated on.

One must further take into account that 10-15% of cases operated on continue to have dyspepsia, and that postoperative gastritis may occur in persons

whose cases had completely negative findings in gastroscopy before operation.

Operation is indicated only when a minimum of 2 internal treatments have been tried in vain in the hospital. The occupation of the patient is no definite argument for or against operation except for sailors, who generally will profit from earlier operation.

Summarizing our discussion and experience, we are more likely than before to advise operative treatment in cases of chronic ulcer. The same argument holds good for cases of repeated bleeding with roentgenological findings. Cases, however, of bleeding without roentgen symptoms have a marked tendency to heal after medical treatment.

KAR—KOE



MEDICAL SCHOOLS CONTRIBUTE MORE THAN 60,000 TEXTS AND JOURNALS TO SOS FOR DOCTORS AND STUDENTS IN EUROPE

Invaluable stores of medical literature essential to reconstruction in Europe have been contributed in recent weeks to the overseas book campaign of the SOS (Supplies for Overseas Survivors) Collection of the Joint Distribution Committee, it was announced recently by Mrs. Felix M. Warburg, honorary chairman of the SOS Collection.

More than 60,000 textbooks, journals, charts and reports were donated by New York City medical schools, libraries and individual doctors in answer to a special appeal issued by Dr. Archibald Malleck, chief librarian of the New York Academy of Medicine, in behalf of the SOS Collection.

A NEW TREATMENT FOR DIAPER RASH

By Reuel A. Benson, M.D., Lawrence B. Slobody, M.D., Lois Lillick, Ph.D., Anthony Maffia, M.D., and Norbert Sullivan, M.D., New York

Condensed from the Journal of Pediatrics

DIAPER rash is the most common skin condition encountered in infants and young children. It is a dermatitis which is usually limited to the skin in contact with the wet diaper. The lesions are characteristically erythematous or papulovesicular and may go on to ulceration. Diaper rash is an ammonia dermatitis. The cause of the NH_3 production is entirely due to bacterial decomposition or urinary urea into free ammonia, and the principal organism concerned is the *B. ammoniagenes*, a saprophytic gram-positive bacillus which originates in the feces and infests the skin of the diaper region.

It follows that the prevention and treatment of ammonia dermatitis is dependent on preventing ammonia formation in the diaper by inhibiting bacterial growth. Bichloride of mercury is not an ideal antiseptic because of its well-known poisonous qualities. Boric acid is safe but has not been found efficacious by most observers.

We have been searching for a safe and efficient bactericide against *Bacillus ammoniagenes*. The results with one of the quar-

ternary ammonium compounds, para di-isobutyl-cresoxy-ethoxy-ethyl di-methyl benzyl ammonium chloride monohydrate, warrants early report. This drug was supplied to us as Diapene.

Fifty infants with ammonia dermatitis have been treated with Diapene. The infants ranged in age from 1 month to 18 months of age. The results in the 50 children were recorded after three and seven days of treated diapers. In three days 31 of the youngsters improved so that the ammonia dermatitis was definitely receding. In 18 children the dermatitis could be considered cleared. In one there was no response. After one week of treatment 49 children were considered cleared; the one did not clear. Fourteen of the infants, after stopping the treatment, returned in two to four weeks with a mild ammonia dermatitis. Once more they responded immediately to the impregnated diapers. It is our impression that Diapene has as much or more efficacy than mercuric chloride in ammonia dermatitis.

The only treatment was impregnating the diaper with Dia-

pene. The Diapene was supplied in the form of tablets. One tablet in two quarts of water provided an approximately 1:25,000 solution. Up to six washed diapers were placed in a basin and the solution poured over them. The diapers were permitted to soak for 10 minutes, then wrung out and hung up to dry. Diapene is absorbed from solution by diapers almost quantitatively irrespective of the concentration of the solution. If diapers were introduced one at a time, all the

Diapene might be absorbed on the first diaper placed in the solution.

In the prevention it is possible that only the night diapers would have to be treated.

The safety of Diapene on human skin was established by contact. No irritant effects were noted.

DIAPENE is a product of
Homemakers' Products
Corporation.

JFS—CHC

FOLIC ACID IN AGRANULOCYTOSIS

It has been known for some time that folic acid is effective in correcting nutritional cytopenia in monkeys; and that the granulopenia produced in rats by sulfonamides can also be prevented by folic acid. In human beings, Menten and Graff (1946) found that sulfonamide granulopenia gave no very definite response to pyridoxine and folic acid, but their daily dosage of folic acid was less than 0.2 mg. Watson et al. (1945) reported improvement in irradiation leucopenia with folic acid.

In the two cases of agranulocytosis studied by us the granulocytes returned to the blood-stream within 48 hours of giving adequate doses (20 mg. daily) of folic acid.

There is no apriori reason to suspect that penicillin has any stimulant action on leucopoiesis, and in both patients granulocytes had not returned after five days' penicillin therapy. Apart from penicillin, the only drug other than folic acid given to both patients was pyridoxine; in the first patient pyridoxine had been given, without response, for three days before folic acid was added. We realize that spontaneous remission may occur at any time in this disease, and that the appearance of granulocytes within 48 hours of giving folic acid to these two patients may have been merely a coincidence. We propose to treat subsequent patients with folic acid and penicillin alone; but, since agranulocytosis is comparatively rare, others may have an opportunity of testing the value of folic acid before another case is available to us.—*D. A. K. Black, M.D., and S. W. Stansbury, M.B., Lancet, June 14, 1:827-828, 1947.*

KAE—ROE

TREATMENT OF URINARY TRACT INFECTIONS

By Doctors Reed M. Nesbit, and Stanley I. Glickman, Ann Arbor, Michigan

Condensed from the Journal of the Michigan State Medical Society

CRITERION for cure following treatment of a urinary tract infection should consist of at least two negative urinalyses with absence of bacteria on stained examination of the sediment. Many urologists believe that this indication of sterility is probably more reliable than the information afforded by culture, since it tends to eliminate the factor of accidental contamination. It should be emphasized that a patient who has been successfully treated for a urinary tract infection should not be discharged from observation for at least six to eight weeks after the last negative urinalysis, for recrudescence of the infection can occur without symptoms and, if not discovered and adequately treated, can go on to chronicity.

With the addition of numerous drugs to the armamentarium available for therapy in urinary tract infections, the physician is occasionally hard put to decide upon the particular agent to employ in an individual instance. A brief discussion of the most important urinary antiseptics and the situations in which they may be utilized to best advantage would appear to be in order.

1. Perhaps the most venerable

urinary antiseptic is hexamethylenamine, otherwise known as methenamine, or commercially as "urotropin." It is ineffective in an alkaline medium, since it is not an antiseptic in its own right. It is efficient only when the urine is maintained at a pH as close to five as possible. This drug is effective in controlling Gram-negative bacillary infections. It carries the disadvantage of inducing bladder irritation in some patients. It is administered in doses of 4 to 5 Gm. daily with 5 to 8 Gm. daily of ammonium chloride. The latter drug may be increased as necessary to obtain the desired acidity of the urine. The antiseptic should be given for 10 to 14 days, if tolerated by the patient.

2. Following the discovery that ketogenic diets with the accompanying acidosis were effective in the treatment of chronic bacillary urinary infections, the use of mandelic acid was proposed. It was found to be effective against Gram-negative bacilli, except *proteus ammoniae*, and *streptococcus fecalis*. It too was found to be effective only in urine of pH less than 5.5, and in a concentration of 0.5% or greater. Both

methenamine and mandelic acid share the disadvantage of being effective only in concentrations that are made possible when the urinary output is sharply curtailed. Mandelic acid often induces nausea and vomiting and after prolonged administration may produce hematuria, with casts in the urine.

A satisfactory mode of administration is syrup of ammonium mandelate, 15 cc. four or five times daily, each 15 cc. of the syrup containing 3 Gm. of mandelic acid. Should the urine require an additional acidifying agent, ammonium chloride 5 to 8 Gm. daily may be given simultaneously. It is advisable to maintain the drug dosage for about 14 days.

3. The sulfonamides as a group have provided powerful agents for urinary antiseptics. In general, they work advantageously against Gram-negative bacilli. Sulfacetimide (commercially sold as "sulamyd") has the advantage of high solubility even in the physiologic acid range of the urine, thereby minimizing almost to a negligible point the danger of concrement formation. In addition, it combines the features of good antibacterial activity, low toxicity, and rapid renal elimination resulting in high urinary level. It is usually administered in dosages of 3 to 4 Gm. daily for the first two to three

days of the acute urinary infection, followed by daily dosages of 2 Gm. (0.5 Gm. q.i.d.) for an additional five to six days. Alkalinization of the urine does not appear to be necessary when this drug is administered.

The introduction of penicillin, with its potency in combatting coccal infections, immediately led to its use in the treatment of *staphylococcus aureus*, beta hemolytic streptococcus, and *staphylococcus albus* infections. It has almost no place in the treatment of infections caused by *streptococcus fecalis*, and fails utterly in those produced by *B. coli* and *B. pyocyaneus*. In treating infections caused by mixed organisms, comprising both cocci and bacilli, the penicillin will often fail in vivo to eliminate the cocci, despite in vitro sensitivity of the organism to clinical doses of penicillin. This paradox has been explained by the discovery that some Gram-negative rods, including *B. coli*, elaborate a penicillinase which destroys the inhibitory effects of penicillin. Recently it has been suggested that a combination of penicillin and streptomycin might act concurrently, for the streptomycin would eliminate the penicillinase-producing organisms, thereby allowing the penicillin to act unrestrained against the cocci.

In those urinary infections that are due to mixed organisms, we

usually employ both penicillin and "sulamyd" during the first course of therapy, the penicillin being administered in doses of 40,000 units intramuscularly every three hours, day and night. Both drugs are continued for 7 to 9 days. If effective, they rarely are needed for longer periods of time.

In discussing the treatment of urinary tract infection with penicillin, one must not omit the consideration of acute gonococcal urethritis. A single intramuscular injection of 300,000 units of calcium penicillin in a 4.8% mixture of beeswax and peanut oil achieves a cure rate of 93 to 95% with almost 100% cure following a second similar injection in the group of 5 to 7% failures. In utilizing this treatment, one may mask the coincidental existence of a syphilitic infection, and a serologic test for syphilis should be made three months after the treatment of the gonorrhea has been accomplished.

The most recent antibiotic to be found bactericidal against organisms invading the urinary tract is streptomycin. It is important to use this agent only in the treatment of infections that are known to be due to streptomycin-sensitive organisms.

The results of streptomycin therapy are most impressive in infections caused by *B. coli*, *Aerobacter aerogenes*, *Proteus amo-*

niae and *vulgaris*. *Pseudomonas aeruginosa* and certain strains of *streptococcus fecalis* respond only moderately satisfactorily. It has been found that the effectiveness of streptomycin is enhanced when the urine is strongly alkaline—around pH of 7.2-7.4. This generally can be attained by the oral administration of sodium citrate. This can be administered conveniently by mouth, one teaspoonful of a 25% aqueous solution of the drug, five times each day. The urine should be tested daily with nitrazine paper to assure the success of this endeavor. Potassium citrate may be substituted for the sodium salt when the cardiac status of the patient poses a problem. Five times a day, 400 mg. of streptomycin are administered intramuscularly, in association with the sodium citrate. The schedule of dosage is on the basis of six doses daily, omitting the 2 A.M. dose. It is preferable to hit the organism hard initially in order to avoid the development of resistance to the drug by the organism, as has been observed on occasions. Treatment is continued a maximum of ten days, and may be stopped at any time that the cultures of the urine show no growth.

6. Some cases of amicrobic pyuria, proved not to be tuberculous in origin, may respond satisfactorily to two or three in-

travenous injections of neoarsphenamine 0.3 to 0.6 Gm. administered with the usual precautions. This same treatment may prove successful occasionally in resistant coccal infections.

BH—KOE



CRAYONS MAY HOLD DANGER

Parents, supervisors and doctors believe that no harm will result from eating these crayons, declares Dr. Esther B. Clark, of the Palo Alto Clinic of Palo Alto, Calif. She, herself, shared this belief until her experience with this case. The danger, apparently, is that of the coloring matter put into the wax of the crayon becoming converted into an aniline dye in the body with serious if not fatal results.

A two-year-old boy in critical condition was brought to her office. The nurse at the child's nursery school thought he was having a heart attack. He was intensely blue, with nearly black lips. Since a physical examination revealed his heart and lungs to be normal, poisoning was suspected and he was given an X-ray examination which revealed foreign matter in his stomach and intestines. Immediately his stomach was washed out and large quantities of orange and yellow crayon were obtained.

While the wax crayons were being washed out of his stomach and intestines, the boy was in very bad condition; his skin became cold and damp; he lost his gag reflex; his whole body was a blue-black color and the blood taken for blood count was chocolate brown.

He was then put in an oxygen tent and given a transfusion. In nine hours he showed improvement and by the next morning his color was almost normal, he talked, ate and drank normally, and walked around in his crib.

Dr. Clark points out that both the mother and father had noticed the bluish color of the boy the night before and "his mother tried to wash the blue color off his hands, thinking that it was paint." It was not until late the next morning that illness was suspected.

The physician thinks it significant that although the nurse observed him eating a crayon and scooped it out of his mouth, it "was considered to be so harmless that the fact was not reported, and was brought out only on questioning."

"The use of para red or other coloring material which could possibly be converted into paranitroaniline, or into other aniline dye in the body, should certainly be discontinued in the manufacture of crayons intended to be used by children," Dr. Clark declares. "If their use is to be continued, warning of danger should be placed on the crayons and on the box."—*Science News Letter*, December 13, 52:374, 1947.

CLINICAL EVALUATION OF UNDECYLENIC ACID AS A FUNGICIDE

By Emanuel Muskatblit, M.D., New York, N. Y.

Condensed from the Archives of Dermatology and Syphilology

Two new preparations ("desenex"), an ointment containing 5% undecylenic acid and 20% of its zinc salt, were used for treatment of various fungous diseases of the skin, which were proved microscopically and, in part, culturally.

Forty-four patients who were treated with undecylenic acid presented the following clinical forms: dermatophytosis of the feet (28), of the hand (1), generalized (2), tinea cruris (1), onychomycosis (4), moniliasis (2) and pityriasis versicolor (6). The patient was considered cured when the skin became clinically normal and microscopically free from fungi. In some patients with slight remaining cutaneous changes a microscopic examination showing absence of fungi was considered sufficient proof that a cure had been achieved.

Of 32 patients with dermatophytosis of varied localization and tinea cruris, 22 (68.7%) were cured, the results for 5 remained doubtful and in 5 the treatment failed. The cure required from 11 days to 3½ months, the average time being 35 days. The duration of the

disease and the clinical type of the lesions had no influence on the duration of the treatment necessary for cure. In some cases fungi could be observed microscopically several weeks and even 3½ months after the beginning of the treatment. The number of positive cultures was too small for definite conclusions. It can be noted, however, that 5 of 8 patients with infection due to *Trichophyton interdigitale* were cured, as were 2 patients with infection due to *Epidermophyton inguinale* while only 1 of 3 in whom the infection was due to *Trichophyton purpureum* was cured. Onychomycosis proved as resistant to undecylenic acid as to other chemicals. Only 1 patient of 4 was cured. In 2 patients with moniliasis (paronychia and interdigital erosions) the treatment failed. Pityriasis versicolor proved rather resistant to treatment. Four of 6 patients were cured in 1 to 4 weeks.

Undecylenic acid did not irritate the skin even in patients with acute vesicular and bullous eruptions. In fungicidal effect undecylenic acid was in general satisfactory but not superior to

other chemicals used in the treatment of mycoses. However, the combination of a considerable fungicidal effect with a lack of irritation makes undecylenic acid valuable, especially in cases of acute inflammatory fungous eruptions and for patients with sensitive skins.

The patients were instructed to rub the ointment into the affected parts of the skin and then to dust with the powder. This procedure was repeated twice daily. The area was washed with soap and water once or twice daily. In cases of fungous infections of the feet the patients were advised to dust the powder

into their socks, or stockings, and shoes. Men were asked to change their socks daily and to disinfect them by boiling in soap and water for fifteen minutes. Women were advised to wear pads of cotton cloth covering their feet under their stockings. The pads were changed daily and disinfected by boiling. This precaution is useful because women's stockings made of silk, rayon or nylon cannot stand boiling. Patients with fungous involvement of the nails were instructed to scrape the nails thoroughly daily and then to rub in the ointment.

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BOWLING FOR BLIND VETERANS

Patients in Veterans Administration hospitals and homes who lost their sight or the use of their legs are rolling up bowling scores well above the hundred-mark on specially constructed alleys, F. R. Kerr, assistant administrator for VA's Special Services, said.

In the VA home at Wood, Wisc., an alley for blind bowlers has been built that can be used entirely by sense of touch and sound.

Boards a foot wide and two inches high run the length of the alley, in place of the usual gutters. Patients can visualize the path taken by the ball by the sound it makes caroming off the boards.

The foul line is a two-inch strip of canvas, tacked to the floor, which stops a bowler as he slides his foot forward in delivering the ball.

Two sections of canvas, suspended from floor to ceiling the length of the approach to the foul line, serve as direction guides. A blind kegler, in taking his initial step to the foul line, swings his delivery hand along the canvas guide in order to locate the direction of the alley.—*Veterans Administration Release.*

CHRONIC RELAPSING PANCREATITIS

By Robert R. Bortnuek, M.D., and E. N. Collins, M.D.

Condensed from the Cleveland Clinic Quarterly

INSUFFICIENT attention has been given to persistent recurrent pancreatic dyspepsia. Clinicians should be watchful for primary pancreatic dysfunction and become "pancreas conscious" when treating patients with associated diseases. For this reason the diagnosis, clinical course and therapy of chronic relapsing pancreatitis will be presented from data obtained on 19 cases. We hope that this report will help to stimulate greater interest in this subject so that earlier diagnosis and more effective treatment can be developed in the future.

ETIOLOGY. Five principal contributing causes of pancreatitis as follows:

1. Trauma, accidental or surgical.
2. Infections, with extension to the pancreas or biliary tract.
3. Toxic agents such as alcohol, drugs (arsphenamine), anesthetics.
4. Biliary obstructions such as stones, spasm, infection, tumor, and duodenal diverticulum.
5. Circulatory factors such as stasis, hypertensive apoplexy, thrombosis, and embolism.

PATHOLOGY. Acute pancreatitis may be classed as acute nec-

rosis of this organ with or without hemorrhage or as suppurative pancreatitis. Chronic pancreatitis is characterized by an increase in stroma. The destruction becomes of clinical importance either when the ducts have become occluded or the glandular elements so destroyed that quantity or quality of pancreatic exocrine or endocrine secretion is affected.

CLINICAL FEATURES. Pancreatic disease apparently occurs at an earlier age than does biliary disease. It has not been readily diagnosed unless the patient was seen during an attack or early convalescence. Surgical intervention and roentgenographic findings of pancreatic calculi have been responsible for the majority of diagnoses.

This entity is characterized by severe epigastric pain with radiation to the back, having vague or no relationship to meals, and sometimes a history of diarrhea. The incidence of chronic constipation is approximately the same as that of diarrhea. If diarrhea is present, the history of fat in the stool (steatorrhea), or undigested muscle fibers in the stool (creatorrhea) is helpful in clinching

the diagnosis. These findings were present in 7 of our cases.

A survey of the literature and close study of our cases indicate that nausea, vomiting, and weight loss are pronounced. Diabetes develops in far-advanced cases and in many mild cases that affect the tail of the pancreas (the greater portion of diabetogenic cells being in the tail). Transient diabetes can be explained by postulating the presence of disturbed function due to edema and/or hemorrhage so that with healing the islet cells are again normal and can pursue normal activity.

During an attack or early convalescence, blood amylase and lipase levels show an elevation. This rise in level of the blood enzymes is ascribed to their inability to pass normally into the duodenum because of obstruction, edema, hemorrhage, and/or fat necrosis. Three of our patients experienced attacks of jaundice (mild) at some time during the course of their disease.

DIAGNOSIS. A patient with pancreatic dysfunction should be subjected to thorough and critical examination. The clinical history should be carefully investigated, and an attempt to establish the major criteria of steatorrhea, diabetes, and pancreatic lithiasis should always be undertaken. Creatorrhea is pathognomonic of pancreatic disease. An upper

gastro-intestinal roentgen survey should be undertaken, since characteristic deformity of the duodenum is occasionally present in pancreatic disturbance. Investigation of pancreatic function should be made by duodenal drainage and enzymatic activity studied. Findings indicative of low enzymatic activity are strong adjuncts in the diagnosis; however, interpretation of pancreatic function tests is difficult and probably not wholly reliable. Many biochemists believe that these function tests are of no particular clinical significance unless absolutely no enzymatic response can be found after stimulation of the pancreatic output, not only after one examination but after several.

TREATMENT. In an acute attack it may be difficult for the clinician to differentiate between acute edema and acute necrosis; because of this difficulty surgical intervention is usually the treatment of choice. Such surgical procedures include exploration, correction of biliary disease, relief of pressure on the duodenum with cholecystostomy and drainage, drainage of pancreatic cysts or abscesses, removal of calculi from pancreatic ducts, anastomosis of the gallbladder (if the cystic duct is patent) to the bowel, and drainage of the common bile duct. The last procedure is usually carried out in all operated cases of pan-

creatitis. Whipple suggests that in the presence of normal gastric acidity cholecystogastrostomy or cholecystoduodenostomy are satisfactory procedures, but in the presence of achlorhydria cholecystojejunostomy is preferred. Partial or total pancreatectomy may be necessary in cases of intractable pain.

Occasionally in recent years spinal anesthesia and sympathetic block anesthesia have been used to relieve the pain of acute or acute exacerbation of pancreatitis.

All patients with pancreatitis must be maintained on medical management thereafter, and all those with acute pancreatic disturbance must be considered as cases of impending pancreatic dysfunction. In all cases of pancreatic dyspepsia, prophylactic measures should be employed. These consist of proper treatment of diseases of the gallbladder, bile duct and liver, and of management of ulcer, duodenitis, and gastritis, if present. Total abstinence from alcoholic beverages should always be observed. Substitution therapy should be employed, and, if on duodenal drainage only the amylase activity is decreased, taka diastase or a similar compound can be given with each meal; if other enzymes are diminished in activity, total pancreatic replacement should be undertaken and the patient given

raw, finely-ground pancreas, served with salt, in as large amounts as he can tolerate, or purified pancreatic extract with a minimum of 5 Gm. per meal but up to 20 Gm. per day if well tolerated. Purified nonprotein containing pancreatic extract, available commercially for intramuscular administration, has not proved to be of value.

For achlorhydria or hypochlorhydria, hydrochloric acid should be added to the regimen; for hyperacidity, antacids should be recommended. In biliary dyskinesia, antispasmodics and sedatives should be administered to relieve spasm and irritation. In cases of irritable colon, bowel management should be undertaken. The values of carbohydrate, fat, and protein in the diet should be judged according to the degree of creatorrhea and steatorrhea and also according to the amount of enzymatic activity found by duodenal drainage. If any one enzyme be low in activity, the diet can be arranged to include a minimal intake of that particular substrate upon which the enzyme is active. Ordinarily, however, carbohydrates should constitute the major portion of the diet because they are the most easily assimilated. The protein requirement may be aided by feeding partially digested proteins and amino acids; the neurogenic

BONE CHANGES AND VARIATIONS IN SKELETAL METASTASES DUE TO DIETHYLSTILBESTROL AND ORCHIECTOMY DURING TREATMENT OF CANCER OF THE PROSTATE

By Carl A. Wattenberg, St. Louis, Mo.

Condensed from the Journal of Urology

DIETHYLSTILBESTROL and bilateral orchiectomy cause a regression of the metastatic prostate carcinoma as well as a regression of the primary prostate cancer. Repeated injections of estrogens or diethylstilbestrol also cause a number of other changes in the body, including hyperossification, breast changes, edema formation, liver reactions and effects on the urethra and verumontanum.

The hyperossification produced by hormone therapy produces tissue which is dense, hard and flint-like. Bone cavities are invaded and replaced by bone. In fractures, callus formation is increased. It is apparent that the estrogens can inhibit metastatic carcinoma not only by changing the carcinoma cells but also by hyperossification about the regressed tumor cells.

The breast changes due to diethylstilbestrol are extensive pro-

liferation of the duct epithelium. The ducts become elongated and budding is present. There is considerable edema of all the tissues, and an increase in the connective tissue with an increase in vascularity. A deposition of fat also can occur.

Very often edema occurs during the giving of diethylstilbestrol. This edema usually is of the lower extremities, and is due to a decreased renal excretion of sodium and chloride, which in turn retains water in the tissues with a consequent reduction in the urine volume, thereby producing dependent edema.

Toxic changes in the liver have been reported by Rumans. An increase in hepatic glycogen occurs, together with hypertrophy and dilatation of the bile ducts. Hepatitis in a patient with prostatic cancer treated with diethylstilbestrol may therefore be due to the hormone therapy.

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(*Journal of Urology*, November, 58: 378-383)

BH—RDD



OFFICE MANAGEMENT OF THE NEURODERMATOSES

By George M. Lewis, M.D., and Frank E. Cormio, M.D., New York City

Condensed from the New York State Journal of Medicine

IT is our belief that certain cutaneous disorders are directly related to psychic trauma or conflict. These include the neurodermatoses either wholly or in part. A psychosomatic investigation therefore is essential in the management of such patients. Measures designed to correct the underlying maladjustments must be combined with symptomatic, local therapy.

Symbolism of lesions has been emphasized recently. This implies that the character of lesions and their location in the body have a special significance. For example, dyshidrosis of the feet and hands in a combat soldier may represent an unconscious rebellion against marching and firing a rifle.

Accordingly, a comparative tabulation was made of the type and location of dermatoses, and the underlying conflict in a series of over 200 patients with psychosomatic dermatoses. On the basis of the studies the following interpretation of data is submitted:

A: AS EXPRESSED BY THE TYPE OF LESION:

1. Pruritus (variably present in most psychosomatic dermatoses).

(a) Localized and recur-

rent: lichen simplex chronicus; longstanding worry and anxiety with makeshift adjustments.

(b) Pruritus plus neurotic excoriations: resentment against environment.

(c) Recurrent episodes of orgiastic character: sexual maladjustment.

2. Paresthesias (acarophobia, glossodynia): phobias, usually of disease.

3. Neurotic excoriations (frequent accompaniment of pruritus): anxiety, desire for sympathy and attention, attempt to remove unsightly lesions from skin (i.e., acne), hostility reaction, at times in psychotic states.

4. Dermatitis factitia (self-induced eruption).

(a) Severe maladjustment, often in hysterical types.

(b) Antisocial and destructive tendencies, masochism.

(c) Narcissism and other forms of psychopathic personalities.

5. Acute exudative neurodermatitis of flush areas: severe anxiety, acute or prolonged unsolvable conflicts.

6. Atopic dermatitis (disseminated neurodermatitis): prolonged social resentment, hostility.

ity, compensatory aggression.

7. Urticaria: acute phobias with anxiety, hostility, and anger.

8. Rosacea: inferiority and self-consciousness, prolonged social anxiety.

9. Hyperhidrosis: insecurity or fear, prolonged social anxiety.

B. AS EXPRESSED BY LOCALIZATION OF LESIONS:

1. Scalp (alopecia areata): inadequacy, acute shock with insecurity.

2. Head (rosacea, seborrheic dermatitis, eczematous ear): social anxiety, stigmatization, guilt.

3. Blush areas (acute neurodermatitis, rosacea): guilt, social anxiety.

4. Hands and feet (pompholyx): dislike or fear of occupational duties.

5. Penis or vulva (pruritus, lichenification, eczematoid dermatitis): sexual disturbances.

6. Scrotum (lichenified eczema): domestic and sexual conflicts, maladjustments or frustrations in these spheres.

7. Anus (pruritus, lichenification): sexual or domestic conflicts, severe anxiety in "anal" types, homosexual tendency in men.

8. Generalized: severe anxiety or maladjustment involving entire environment.

Our psychosomatic investigation utilizes both objective findings and anamnestic data for the

interpretation of underlying causative mechanisms. Valuable information may be obtained by careful study of the eruption as mentioned under symbolism. The line of questioning then may be somewhat predetermined and valuable time saved. As a background for the development of the eruption, the adjustment of the individual in his progress through life is first considered. The behavior pattern of the individual and the salient personality features then are compiled. Moreover, previous studies have shown that the type of dermatologic reaction is dependent not only on the specific behavior patterns but, also, on the nature of the precipitating episode. From this information, the probable reaction of the individual to various situations and specific conflicts may be adduced. It is important to determine the life setting of the individual just prior to the onset of the present illness. Finally, the onset, development, and progression of the present illness should be correlated with specific precipitating incidents in both the somatic and psychic realms.

OUTLINE

1. *Initial Summary* of objective features of dermatosis.

2. *Preliminary Investigation* (if indicated) to rule out other causative factors.

3. *Family History:*

(a) *Parents:* personality types, general adjustments, marital history, strictness emotional relationship of patient with parents. Physical diseases, age at death, and age of patient at death of parent.

(b) *Siblings:* number, sex, chronologic position of patient, physical diseases.

(c) *Nervous breakdowns,* etc.

4. *Health Record:*

(a) Diseases, general physical status, injuries, reaction of patient to diseases. Pseudo-hereditary tendencies (symptoms, etc., similar to those of parent).

(b) Addictions: tobacco, alcohol, need for drugs.

(c) Dreams: type and frequency.

(d) Neurotic traits: nail-biting, thumbsucking, bedwetting, tantrums, lying or stealing; late fears, compulsions, or tensions.

5. *General Adjustment:* Chronologic story of life, taken up under several headings, as follows:

(a) *Family life:* childhood, adolescence, and adult life, with relationship to parents and siblings.

(b) *Education:* details of, interest in, progress, relation to teachers and schoolmates.

(c) *Social life:* adaptability, friends, hobbies, religion.

(d) *Work record:* details,

interest and progress, stability, income.

(e) *Sexual life:* development, adult pattern, necessity, normality (escape mechanism?). Details of marital life including engagements, marriage, and divorce.

6. *Behavior Pattern:*

(a) Dominating or submissive.

(b) Goals in life.

(c) Emotional trends: cheerful, depressed, unstable, etc.

(d) Introversion or extroversion (motivating stimuli from within or without).

(e) Constricted or dilated personality.

(f) Reaction to authority: thinking, talking out troubles, substitute activities, active aggression.

(g) Personality type: compulsive, anxiety, hysteria, neurasthenia, psychopathic.

7. *Preparation for Illness:*

Correlation of prolonged conflicts, life situation prior to onset, with type of individual in his life setting.

8. *History of Present Illness:*

(a) Chronologic correlation of stresses, strains, traumatic events, and subsequent conflicts with appearance and progression of present condition.

(b) Purpose served by symptoms:

1. Symptoms as an ex-

pression of and defense against conflict.

2. The idea of compensation; escape from unpleasant duty.

3. Centering of attention on inadequate personality.

(c) Reactions to present illness; enjoyment, fear, pain and discomfort.

(d) Amount of associated neuromuscular tension, dreams.

(e) Insight into present condition; will to get well.

A CASE REPORT AS ILLUSTRATION. J. S., a 52-year-old clerk, had had pruritus and neurotic excoriations of the face for some fifteen years. The eruption was complicated by secondary pustular folliculitis on a number of occasions and by a severe attack of edematous and plaque dermatitis from penicillin. The patient was of Scotch-Irish origin, and was brought up in a lower-middle class environment and in a rather closely knit family. He was closely attached to his mother and depended to a considerable degree on her. His financial status has remained in a precarious state throughout his married life. He has held a minor administrative job, with just sufficient funds on which to live, until his wife contracted a severe illness four years ago, with a partial residual incapacity to date. Since her illness, he has incurred substantial debts and has had a difficult time maintaining a home for his young son. During this four-year period, it has been necessary for his wife to spend months at a time with her parents, so that special care could be given. He lived alone during much of this period.



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The pruritus and excoriations were first noted shortly after the death of his mother, at which time we was first compelled to assume the normal responsibilities of manhood. The trouble continued, for the most part in mild form, through the years. It is noteworthy, and possibly related to his long-standing mother-fixation, that the condition was not aggravated during the acute serious phase of his wife's illness. Six months ago, and for the first time in years, an opportunity arose for him to better himself with a position which combined a significant increase in salary with corresponding increase in responsibility. During this period of uncertainty while the applicants were being considered, he excoriated his face so severely that he was automatically eliminated as a possible candidate for the position. Secondary infection and reactivity to penicillin then supervened and investigation and treatment were initiated.

He was followed over a period of some three months. Initially he was convinced that his complaints were solely physical in nature, but as time went on the relationship between the long-standing anxiety-state and the development of the lesions became increasingly evident to the patient. Involution was nearly complete and a more satisfactory adjustment to the conditions of his life had been obtained at the time of his last visit.

With the combined psychosomatic and symptomatic methods of therapy our results of treatment have been good, 50% of patients being cured or markedly improved.

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  **No great intellectual thing was ever done by great effort; a great thing can only be done by a great man, and he does it without effort.—Ruskin**

POLIOMYELITIS AND TONSILLECTOMY

By Claude D. Winborn, M.D., and John R. Stansbury, M.D., Dallas, Texas

Condensed from Laryngoscope

A SURVEY of 134 patients with acute poliomyelitis indicates that the incidence of this disease in tonsillectomized individuals is no greater than in those patients whose tonsils have not been removed. The danger of contracting poliomyelitis following recent tonsillectomy was also found to be minimal. No other physician knows better than the otolaryngologist the amount of damage that may result from postponing these operations too long, nor does anyone else know better than the otolaryngologist the difficulty of performing these operations during the months when the incidence of poliomyelitis is lowest and the incidence of upper respiratory infections is greatest. The results of this survey are therefore important.

The survey covered the first eight months of 1946, during which 134 patients were admitted. During the first five months, or the nonepidemic period, 26 cases were admitted. During the last three months of the survey, there were 108 admissions. Of the total number of cases, 44 per cent had had a tonsillectomy, which figure approximates the normal ratio of tonsillectomized individuals to the

total population in Dallas County. Apparently an unusual finding was the relationship of tonsillectomy and adenoidectomy to poliomyelitis during the quiescent period and that during the epidemic period. Of the 26 cases admitted during the non-epidemic period, 19% had been tonsillectomized, whereas during the epidemic period 50% had had a tonsillectomy. Four of the first group were bulbar type, only one of whom had had tonsils removed, while 18 of the latter group were of the bulbar type—16 of whom had had a tonsillectomy.

Only one patient out of the 134 had been operated upon less than one month before presenting symptoms of the disease, and only six had been operated upon less than six months, none of whom had the bulbar type of poliomyelitis. Although the exact number of tonsil and adenoid operations done during this period was unobtainable, reliable estimates from all hospitals in the city indicated a considerable number had been done during June, July and August.

Considerable hardship on children with sufficient indications for tonsillectomy is being evoked by

over-emphasizing this disease and the allegation that recent tonsillectomy is a predisposing factor. To realize that it is over-emphasized, one need only to compare statistical data of this disease with that of other severe and common diseases of childhood. In the sum-

mary of a very logical report in May, 1946, Dr. Edward R. Roberts, Bridgeport, Conn., stated, "It is estimated that the average annual incidence of poliomyelitis in everyday life is one to 3,250 population."

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FOH--RDD



A CASE OF HICCUP

Revival of an old Remedy

During operational minesweeping off Malaya a request was received from another ship for medical attention for a naval stoker who had had hiccup for 48 hours. He did not respond to all old and well-tried methods, such as breath-holding, breathing in and out of a paper bag, traction on the tongue, and eating or drinking such things as sugar and eucalyptus oil (we had no cajuput) or sugar and vinegar.

We also tried a mixture of oxygen and 7% carbon dioxide administered with a "Novox" apparatus for long periods. Phenobarbitone gr. 3 statim and gr. 2 b.i.d. was given to allay growing anxiety. Mist. kaolin et morph. (N.W.F.) ½ oz. was given to relieve any possible gastric irritation. Hyoscine hydrobromide gr. 1/75 was then given by mouth to reduce parasymphathetic activity.

The only treatments left seemed to be the administration of a general anesthetic, and, if that failed, phrenic-nerve paralysis either by procaine injection or avulsion. Before seriously contemplating these heroic procedures, a mental survey was made of the drugs supplied to small ships. One antispasmodic, amyl nitrite was available, and this had not yet been tried.

Inhalation of the vapor from one ampoule of amyl nitrite worked like a charm, and in less than a minute the hiccup had stopped. A slight recurrence three hours later was treated in the same way, and this time the patient remained quite free from hiccup.

I have since employed it in a few other cases of hiccup, including alcoholic hiccup, with unequivocal success.—R. C. Nairn, *Lancet*, June 14, 1:829-830, 1947.

KAR—KOR

TREATMENT OF CANCER OF THE COLON

By K. A. Hultborn

Condensed from the Acta Chirurgica Scandinavica

THE operative treatment of cancer of the colon has carried a high mortality and, in order to reduce that part of the mortality which is due to peritonitis, many surgeons have adopted the Bloch-Mikulicz procedure or some modification thereof. Other surgeons have regularly resorted to resection with direct anastomosis.

The author reports the cases of colonic cancer treated at the Surgical and Garrison Departments of Karolinska Sjukhuset for a 6-year period 1940-1946. The report consists of 142 patients, 93 of whom were subjected to some form of radical operation with a mortality of 12.9%.

In 63 cases resection was performed on left-sided tumors. Resection with direct anastomosis was performed in 58 cases. Sixteen of these patients were subjected to cecostomy at a 1st stage, 11 because of acute and 5 because of chronic ileus. In the other 42 cases operation was made in 1 stage. In 12 of them a cecostomy was done at the same time and in 30 resection was made without a cecal fistula. An end-to-end anastomosis was made in 45 cases and in 13 a side to side.

In no case did the cecostomy

conduce to a fatal issue. When cecostomy was done simultaneously with resection, the hospital stay was 4½ days longer than where resection had been performed without cecostomy.

In the 14 cases with acute ileus which necessitated cecostomy, and in which resection was afterwards performed, the time between establishment of a cecal fistula and resection averaged 38 days.

With 1 exception, the cecal fistula had healed when the patient was discharged. Sixteen healed spontaneously, 9 were closed operatively.

Out of the 63 patients subjected to resection because of the left-sided tumors, 5 died. In the 58 cases where resection was made with direct anastomosis, the mortality was 8.6%.

Resection was performed on 30 patients with right-sided tumors. In 1 case with the tumor situated in the hepatic flexure the patient was admitted because of peritonitis. The operation consisted of laparotomy plus drainage. At a later stage resection of the hepatic flexure was made in accordance with the Bloch-Mikulicz procedure. The patient was discharged as cured.

In 29 cases the operation took the form of ileocecal resection plus ileotransversostomy. The anastomosis was made side to side in 26 cases and in 3 cases end to side. In 25 cases this operation was performed in 1 stage. Out of the 4 who had been operated in several stages, 2 had been admitted because of acute ileus. In the latter cases a cecostomy was first carried out, and at a second stage, ileocecal resection plus ileotransversostomy were performed. Both were discharged as cured. In a 4th case, owing to poor general condition, the iliac loop was divided, the distal ileum end was closed and ileotransversostomy was done, as a first stage. The patient was discharged as cured.

Out of the 30 patients subjected to resection because of the right-sided tumors, 7 died, i.e., a mortality of 23.3%.

For a favorable result of the operation an effective pre- and post-operative treatment is required. It is essential to eliminate anemia and hypoproteinemias, and to bring the patient into a salt and fluid balance.

We have also attached great importance to the colon being empty before resection. When this cannot be attained we have performed cecostomy as a 1st stage operation. We have had no complications from laxation in cases of obstructive tumors. If the

patient has complained of attacks of pain resembling ileus, the laxation was discontinued and the condition alleviated with opium, and a more cautious laxation tried.

Chemotherapeutical preparations, such as sulfathiazole, sulfapyradin, sulfadimine and elkosin, were administered orally preoperatively and as a rule a week postoperatively in most cases. In the majority of patients sulfathiazole was used locally at the place of anastomosis.

Recently, in the more delicate cases we have administered penicillin intravenously, especially in view of the danger of pneumonia.

The danger of thrombosis and embolism is great. During the last 3 years we have as a rule treated these patients prophylactically with dicoumarin. Thrombo-embolism complications occurred in only 4 cases.

We adopted mainly spinal anesthesia, supplemented with narcotic and gas anesthesia, as a rule nitrous oxide, occasionally cyclopropane.

We are of the opinion that acute ileus should first be subjected to a relieving form of operation, as a rule in the form of a cecostomy. In other cases primary resection with direct anastomosis should be performed. In doubtful cases one should not hesitate to perform a cecostomy.

We believe that the Bloch-Mikulicz procedure could not have prevented a single death in the group of left-sided tumors with resection by direct anastomosis. Compared with that procedure, direct anastomosis has the advantage, in our opinion, that the operation is more radical, as more of the intestine can be removed and especially a large part of the mesocolon, together with any lymph-gland metastasis present.

To judge by literature, the Bloch-Mikulicz procedure could not have reduced the mortality in the group of resections of right-sided tumors.

Our experience has forced us to the conclusion that resection with direct anastomosis is the operation of choice, especially as the Bloch-Mikulicz procedure is less radical and entails a more protracted postoperative course.

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LKF—CHS



DO ENTERIC COATINGS OF PILLS DO WHAT THEY ARE SUPPOSED TO DO?

A study of the enteric coatings used today shows that the hope that they will behave as desired is based usually on the supposition that the gastric juice will be acid and the intestinal juices alkaline. Actually, of course, these suppositions are often invalid; the gastric juice of over 20% of older persons contains no free acid, and modern research has shown that for much of the time the contents of the duodenum and upper half of the jejunum are slightly acid. With some substances, such as keratin, the hope is that digestion of the coating will take so long that by the time the pill goes to pieces it will be in the bowel.

A number of technics have been worked out for determining whether or not a particular enteric coating will work as it is expected to do. By use of these technics it is evident that even with the best coatings available only from 53 to 65% of the capsules given break up in the small bowel.

The impression gained from all this research is that whenever one is giving medicine in an enteric-coated pill or capsule one must assume that the patient will fail to get, in his small bowel, from a third to a half of the medicine supplied; much of it will either be liberated in the stomach or else will go out in the stool.—*Gastroenterology*, August, 9:219-222, 1947.

KAE—KOE

ROENTGEN THERAPY OF CARCINOMA OF THE ESOPHAGUS

Condensed from Radiology

THAT the radiation therapy of carcinoma of the esophagus presents us with one of our most difficult problems is universally recognized, more especially as no other form of treatment can claim equally good results from the standpoint of mortality or morbidity.

In assessing the results obtained from various types of therapy, consideration must be accorded the site of the tumor. Carcinomas involving the cervical portion of the esophagus are much more amenable to radiation therapy, since an adequate dose of radiation is more easily applied here, and the results are statistically better than for other esophageal cancers. In the thoracic portion, the esophagus is not only at a greater distance from the skin, making it more difficult to apply an adequate tumor dose, but it also lies in close proximity to vital organs whose presence gives the radiologist justifiable concern. Tumors in the region of the cardia are also relatively inaccessible, and their irradiation may involve considerable exposure of the liver, spleen, and stomach, resulting in leukopenia and other constitutional effects.

Radium therapy, extensively

employed in the past for esophageal carcinoma, has been largely discontinued because of its ineffectiveness and the untoward accidents which have attended it. The use of the radium bougie has given the best results, and a number of cases are recorded in the literature with survivals for varying numbers of years without evidence of recurrence of the original lesion. The disadvantages of the method are the local trauma, with imminent danger of perforation of the esophagus, and the high local dosage with rapid decrease of the depth dose, thus affording insufficient irradiation of adjacent lymph nodes.

A careful study of 32 cases of carcinoma of the esophagus has been reported by Smithers, Clarkson and Strong. The radiation was given through 6 fields, 20 x 4 cm., at 400 kv., 80 cm. focus-skin distance, with a half-value layer of 3.7 mm. Cu. Six of the patients were living at the time of the report. One was alive and well 4 years after treatment, the others at various intervals, from 13 to 32 months. Eight of the patients who died lived a year or more after treatment and one more than 2 years. In 3 who died of metastases, all local symptoms

had disappeared. In no case was there evidence of fibrosis of the lungs, nor was there evidence of cardiac damage in any instance. The skin effect was negligible, with only a mild erythema in most cases.

A series of 36 cases of cancer of the thoracic esophagus treated with medium-voltage roentgen therapy has been reported by Strandqvist. The factors used were 170-180 kv., target-skin distance 50 cm., filter 0.5 mm. Cu plus 1.0 mm. Al. The skin and lung reactions were somewhat more annoying than in cases treated by others with higher voltage. Injury to the heart due to direct irradiation of the cardiac region was observed in several cases. This was a late complication and was not observed until 6 months to a year after treatment. In this series of 36 cases there were 4 patients who lived

2 years or longer. Of these, 2 were living and well at the time of the report. Eighteen patients died within one year. The author concludes that one cannot attain lasting cure without producing excessive damage to vital intrathoracic organs.

It would seem from this brief review of the treatment of cancer of the esophagus that the results are much improved when voltages of 400 kv. or more are employed for standard cross-fire irradiation. It is also noted that damage to the skin and even to the lungs and heart were less at the higher voltages. The results appear to indicate that with supervoltage irradiation of carcinoma of the esophagus we may hope for a moderate number of cures, while relief will be obtained in a high percentage of cases.

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TAJ—KOE



MEDICAL PUBLICATIONS NEEDED OVERSEAS

As a result of war and persecution, doctors, dentists and technicians in allied fields throughout Europe have been deprived for more than ten years of news of the latest developments in their professions—the kind of news and analysis contained in this journal.

When you have finished this issue, put it to work by sending it to the SOS (Supplies for Overseas Survivors) Collection of the Joint Distribution Committee, 1 West 39th Street, New York 18, N. Y. It will be placed in a library in a D. P. camp, child care center, hospital or school, for use by professionals desperately anxious to bring themselves up-to-date on the knowledge forcibly kept from them by the Nazis.

PREVENTION OF REPEATED MISCARRIAGE

By Lawrence Kurzrok, M.D., and Charles Birnberg, M.D.

Condensed from the American Journal of Surgery

WE ARE reporting a series of 27 cases of repeated miscarriage treated by the administration of anterior pituitary-like hormone (APL), corpus luteum hormone (CLH) and estrogen. These women had miscarried from 1 to 3 times previously.

Treatment in our cases was begun as soon as a diagnosis of pregnancy was established or suspected, and consisted in the following:

Anterior pituitary-like hormone, 1,000 to 2,000 units 3 times a week until $4\frac{1}{2}$ months' gestation, then 1,000 units 2 times a week till 8 months.

Corpus luteum hormone 5 mg. 3 times a week until $4\frac{1}{2}$ months' gestation, then twice a week until 8 months.

Estrogen—alpha-estradiol $\frac{1}{2}$ to 1 mg. daily, depending upon the extent of uterine and genital hypoplasia present. In a few cases, ethinyl-estradiol 0.05 mg. 3 times a day was given instead of alpha-estradiol with no apparent difference in effect.

We were extremely fortunate in our results. There were no interruptions of pregnancy in the 27 cases. Miscarriage did not take place, though there were

cases which bled even during treatment. We do not believe the treatment outlined is a panacea for all miscarriages, nor does it preclude further improvements and changes as our conceptions, knowledge and armamentarium improve and grow. The babies delivered were normal with the exception of one, which was a Mongol.

Labor did not set in earlier than 10 days after discontinuance of the injections. In most cases, there was a lapse of approximately 3 weeks. In several other cases in which CLH had been given without APL, bleeding occurred about 3 weeks after stopping of the therapy, at 4, $4\frac{1}{2}$, and 6 months, respectively.

The theory underlying our therapeutic program is as follows:

We incline to the belief that many miscarriages are due to faulty implantation and believe that the invasiveness of the trophoblastic layer is dependent upon the amount of stimulation that it receives from the anterior pituitary and the placenta—in other words the depth and strength of attachment of the placenta depends upon the

amount of prolan produced, either by the anterior pituitary or by the placenta. Many times we have performed Aschheim Zondek tests on patients presumably pregnant in whom a vaginal examination failed to establish such a diagnosis. They were approximately 6 weeks from the last menstrual period and we found only a moderate follicular stimulation or even a negative response, only to find two weeks later on repeating the test a full positive test for pregnancy. This absence of a positive pregnancy test at a time when one would normally expect a full positive response is undoubtedly due to lack of prolan production, and we believe it most likely to occur in those women who have a considerable genital hypoplasia and in whom the uterus barely reaches a normal size at 6 weeks' gestation. It is not unusual to find in this group of hypoplasias some defect in the production of a good progestational phase premenstrually, although a poor luteal phase is not ruled out by the absence of genital hypoplasia. It is generally agreed that the production of prolan is highest in the first

trimester of pregnancy with a gradual decrease thereafter.

There is some evidence to show that the production of estrogen and progesterone lies in the syncytial cells. We also know that a large percentage of miscarriages occur during the so-called "danger period" around 3 to 3½ months of pregnancy, at a time when the corpus luteum of pregnancy is degenerating and the placenta takes over its function. It is very reasonable then to believe that insecure implantation of the placenta would result in insufficient production of the hormones necessary to the life of the pregnancy and bleeding at the site of the poorest syncytial penetration, i. e., separation of the placenta.

It is our belief that Rh incompatibility does not produce miscarriage.

We have not had sufficient experience with vitamin E, except in threatened abortion. In such patients we were unable to obtain a salvage rate of any considerable proportions. In this series of cases no vitamin E was given any patient.

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CHL—RDD



§ The healthy know not of their health, but only the sick: This is the Physician's Aphorism.—
Thomas Carlyle

THE SUBCUTANEOUS ADMINISTRATION OF SODIUM SULFADIAZINE

By Gilbert B. Forbes, M.D., George Donnell, M.D., John C. Herweg, M.D., St. Louis, Mo.

Condensed from the Journal of Pediatrics

THE subcutaneous route for the administration of sodium sulfadiazine constitutes a satisfactory method for parenteral chemotherapy in infants and children. Blood sulfadiazine concentrations of any desired magnitude can be quickly achieved and easily maintained by this method. The intravenous route is indicated only under exceptional circumstances. The limitations of the infantile gastro-intestinal tract for the absorption of sulfadiazine requires that the drug be administered parenterally on many occasions.

The solutions of sodium sulfadiazine for subcutaneous use were prepared by adding sterile powdered sodium sulfadiazine to sterile one-half fortified lactate-Ringer's solution in amounts sufficient to make either a 1% or a 5% solution. Those for intravenous use were made up in 5% concentration in distilled water. The solutions were prepared aseptically and were not subjected to further sterilization procedures before use. They were discarded if not used within 24 hours. It is best to avoid the admixture of glucose, as it may react chemically with sulfadiazine, particularly if

the solution is heated. Before adding the sodium sulfadiazine to the lactate solution, one must be certain the pH is greater than 6.5 or preferably above 7.0 to avoid the undesirable effect of free lactic acid.

Solutions of sodium sulfadiazine in 0.5 and 1.0% strength are well tolerated by the subcutaneous tissues, and pain is no greater than that accompanying other subcutaneous infusions. Our experience with solution strengths greater than 1% has been quite limited, but it has been reported that 5% solutions do not provoke untoward reactions.

A subcutaneous dose of sodium sulfadiazine (0.3 Gm. per kg.) as a 1% solution regularly effects a rapid rise in blood concentration. In each of the five subjects in this latter group the blood level was 10 mg. per cent or above at the end of an hour, and in four of the five it exceeded 20 mg. per cent within two hours of the start of the subcutaneous infusion. Doses of 0.1 and 0.05 Gm. per kilogram body weight do not result in unusually high levels.

We have preferred the subcutaneous to the intravenous route

for parenteral sulfonamide therapy for the following reasons: It is easier to administer solutions subcutaneously, particularly to small infants. Continuous or intermittent intravenous infusions are quite difficult to maintain over long periods, especially when many of the patient's available veins must be utilized. An adequate amount of fluid and of alkali can be administered simultaneously with the sulfonamide drug. The initial, and unnecessarily high, spike in the blood sulfonamide concentration which follows intravenous injection is avoided. After subcutaneous injection the blood level rises to the desired value rather than falling to it as is the case with an intravenous injection. With comparable dosage, the attained blood level at the end of six to eight

hours is similar with the two methods of administration.

While there is a definite lag in the establishment of spinal fluid concentrations of sulfadiazine with the subcutaneous route of administration, as compared to the intravenous, the magnitude of this lag would not necessarily preclude subcutaneous therapy in clinical practice except under the most unusual circumstances. The use of larger per kilogram dosages for the initial stages of therapy, however, tends to overcome this discrepancy. When the two routes are compared in the same patient, there is little difference between them, though average values obtained from a series of patients indicate that the intravenous route produces a given spinal fluid level approximately two hours in advance of the subcutaneous.

JFS—CHC



CEILING MOVIES FOR PARALYZED PATIENTS

Paralyzed patients lying flat on their backs in Veterans Administration hospitals can see current motion pictures in their wards without even moving their heads. The showings have been made possible by home-made changes to the 16 millimeter projection equipment wheeled into wards as part of VA's program of bedside entertainment. In some cases, projectionists remove the tops of cabinet-type projectors, so that films can be flashed onto ceilings directly above the heads of a small group of patients. In other cases, batteries of mirrors are arranged so the projected image is reflected onto the ceiling.—*Veterans Administration Release.*

THE OBSTRUCTIVE PROSTATE

By Frank Hinman, M.D., San Francisco

(Condensed from the *Journal of the American Medical Association*)

THE obstructive prostate is of several varieties. Benign enlargements and median bar formations are almost always obstructive; inflammations, cysts, prostatic calculi, leiomyomas and fibromyomas occasionally, but cancer infrequently, unless associated with one or more of the preceding conditions. Benign enlargement and carcinoma are common affections, each with a high rate of disability and death. Since obstructive conditions are so frequently associated with carcinoma and time will not permit full presentation of all of them, the discussion will be limited to benign enlargement and carcinoma.

Benign enlargement of the prostate is not a hypertrophy or merely a hyperplasia of the prostatic elements, the terms commonly used. The majority of authorities believe that it is a new growth of fibrous, muscular and glandular tissues, serving no physiologic purpose, a fibromyoadenoma. No one knows why the enlargement begins, although an endocrine disturbance is suspected.

Cancer of the prostate, like enlargement, occurs in later life and the two often occur together but

are unrelated otherwise. Unlike enlargement, which involves periurethral glands, cancer arises from any other part of the parenchyma of the true prostate, usually in the periphery. It is this external position which makes the early recognition of its presence possible. Complete removal and cure of the lesion while it is limited within the prostate is possible and has been accomplished repeatedly, even when perineural lymphatics in the capsule have been invaded.

When the facts about occult carcinoma and metastasis are explored, it seems probable that the disease may exist for many years without causing symptoms or spreading beyond its place of origin. This delay prolongs the period for making an early diagnosis and should incite an extra effort to improve one's methods of diagnosis so that full advantage of it be taken, provided of course that early diagnosis and radical surgical methods will cure the disease. Unfortunately only about 5 in every 100 with cancer of the prostate are seen early enough to justify radical surgical procedures. It is apparent that many physicians, suspecting cancer or even being sure of it, keep silent,

because they know of nothing better, or refer the patient to a member of that large group of urologists who neither advocate nor perform radical surgical operations.

For the early recognition of those primary lesions which cannot be palpated per rectum, two disciplines have been developed through experience. In the past ten years my own records show 43 cases which were unsuspected on rectal palpation before operative intervention. They were discovered by microscopic study of material removed at transurethral resection or of the specimen after perineal or suprapubic enucleation for enlargement. Resectionists, therefore, should put aside for particular microscopic search the material removed from the deeper peripheral portions of the enlargement. In addition every suprapubic and perineal prostat-

ectomy should be followed by a careful search of the surface of the specimen and of the cavity left after enucleation, and a biopsy with frozen section of any areas at all suggestive should be made.

How effective is endocrine therapy? The real benefit that most patients with advanced cancer of the prostate derive from hormonal therapy must not be minimized. The relief from pain, the improvement in urination with recession of the local growth and the gain in general health are often remarkable. The indications are, however, that in a five-year period almost as many will die as in the untreated series. The immediate benefits are not permanent, and the cancer may show an increase of virulence later. Most urologists, therefore, hesitate to use this method of treatment of early cancer.

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BH—RDD



- ¶ The discovery of a new clinical phenomenon is a sufficiently rare event to be worth recording. In the history of a patient newly admitted to hospital I read that he had noticed that his urine had turned green. I observed to my house-physician that he had no doubt been taking backache pills containing methylene blue, but was informed that the patient had haematuria and was color-blind.—*The Lancet*, November 1, 1947.

TREATMENT OF PLANTAR WARTS

By Harvey Blank, M.D., Philadelphia

Condensed from the Archives of Dermatology and Syphilology

A HIGHLY successful method of treatment of plantar warts, without complications and without roentgen rays, is presented. The method described in this report is simple, requires little equipment, does not disable the patient, cures a high percentage and causes no complications or painful sequelae. It is particularly useful when adequate roentgen ray therapy is not available or has failed to destroy the lesion.

The verruca is made accessible by applying a thick ring pad around the lesion so that when the patient bears weight on the foot the verruca is extruded through the hole. Adequate destruction of the lesion is accomplished with the proper application of phenol and nitric acid. Either of these drugs used alone may cause destructive changes which are unpredictable and result in injury to the patient. If they are used in combination by first applying phenol and following it immediately with nitric acid, the penetrating necrosing action is controlled by the reaction which converts the two chemicals into trinitrophenol (picric acid).

It should be emphasized that the chemical cauterization of

plantar warts is associated with danger. These substances must be applied carefully in small amounts in order that only the lesion itself be touched and that the surrounding normal skin be undamaged. If used correctly, in accordance with the procedure described, this chemical method is safe.

Step 1.—With a sharp scalpel or a razor blade the suspected lesion is pared down as much as possible. The diagnosis can then be confirmed by observing in the center of the callus the circumscribed verruca with several small dots in its center. A careful examination should also be made for satellite verrucae, which will be seen surrounding the central lesion and which are a frequent cause for failure of any method of therapy.

If vesicles or other signs of dermatophytosis are noted the treatment of the verruca must be delayed until the fungous infection is cured by other means.

Step 2.—With a fine wooden applicator, a drop of 90% phenol (so-called "liquefied crystals of phenol") is carefully applied to the top of the wart.

Step 3.—With another wooden applicator, a drop of "fuming"

concentrated nitric acid is applied directly over the phenol. A slight sputter is heard as the lesion turns dark brown. Practically no discomfort is experienced by the patient, although the sound may startle him at the first treatment.

Step 4.—A rounded pad is devised with a piece of stiff felt or six to eight layers of adhesive tape. It should have tapering edges for comfort and a hole in the center which is the size of the verruca and which just fits over it. This is then applied to the foot. If multiple warts are present they can be treated by using separate pads or by having two holes in one pad.

Step 5.—A small amount of ointment consisting of 60 per cent salicylic acid in petrolatum is placed in the ring. The ointment is used to soften the epidermis in order that it may be trimmed with ease at the time of the next treatment. The hole should not be completely filled with the ointment or it will prevent the adequate extrusion of the verruca. The entire pad, including the hole, is then covered and fastened to the foot with several strips of adhesive tape. These should be applied in such a manner that the pad cannot slip and the keratolytic ointment cannot escape.

After this treatment the patient is instructed to continue his usual activities. It is essential that the

patient force the lesion into the well-like opening by walking on the pad. The use of the pad is an important part of the treatment, and it must be applied with care. Vigorous athletics, such as tennis, are prohibited. Bathing or showers are permitted, but the patient should be cautioned not to disturb the dressing.

In four or five days the dressing is removed, and the verruca with the surrounding callus is again pared down as thin as possible. At this time the skin will be observed to be white and soft from the action of the ointment. One should attempt to remove as much as possible of the dead epidermis without causing bleeding from the vascular papillae in the center of the wart. If bleeding occurs no harm is done, but several minutes should elapse to allow it to stop before the treatment is continued.

The same procedure, as previously outlined, beginning with the application of the phenol, is repeated and the lesion dressed in the same manner. Occasionally the verruca will become sensitive for the first day or two after treatment. If this persists the treatment should be decreased by omitting the caustics or both the caustics and the ointment at the next treatment. The complete procedure can be resumed for the following treatment.

At the completion of the treatment there must be a smooth continuity of the skin, with absence of the ring demarcating the wart from the surrounding skin, absence of the papillae in the center of the lesion and disappearance on palpation of the firm tender nodule of which the verruca is composed. The patient should be carefully examined at monthly intervals after the treatment has been completed to make certain that the lesion has not recurred.

The treatment described has has been used on 100 patients treated under military conditions. In no instance has any serious reaction been observed. The number of applications used varied from two to twelve, the average being six. Of the 100 patients, 12 were assigned elsewhere before the period of treatment and observation could be completed. Of

the 88 for whom treatment was completed and who were followed for at least one month thereafter, all but 1 were free of clinical evidence of a verruca when the course of therapy was completed.

The 1 patient for whom treatment was a failure had had repeated inadequate surgical excision and electrodesiccation over a four-year period, with resultant scarring and distortion of the tissues. Of the 87 patients in whom the verrucae were obliterated by one course of treatment, 8 had a recurrence. Of these 8 patients it was possible to retreat only 5, because of military movements. But in all 5 a permanent cure was eventually obtained. It is felt that had it been possible to retreat the other 3 in whom there were recurrences, even a higher percentage of cures would have been effected.

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DMP—KOE



Public Health Service awards for basic medical research have totaled \$10,214,174 during the past 20 months, according to a report made public recently by Oscar R. Ewing, Federal Security Administrator. Six hundred twenty-nine scientists in 193 institutions shared in these grants, as listed in the report to the Administrator by Doctor C. J. Van Slyke, Chief of the Division of Research Grants and Fellowships of the National Institute of Health, Public Health Service, Federal Security Agency.—*Release, Federal Security Agency.*

ALDARSONE AND NEUROSYPHILIS

By Douglas Goldman, M.D., Cincinnati, Ohio

Condensed from Diseases of the Nervous System

ALDARSONE is a pentavalent arsenical compound which has been found to have marked protozoacidal properties and yet to be reasonably safe for use in treatment of human illness.

This report deals with the use of aldarson in approximately 130 patients suffering from neurosyphilis, practically all in the dementia paralytica group. The drug was in most instances used in conjunction with fever therapy and bismuth compounds in the same manner that other arsenical drugs have been used in our clinic. We have a series of some 1,500 patients treated for neurosyphilis by various techniques which serves as a control for comparison of results.

After a period of treatment with a soluble bismuth compound, treatment with fever (which is produced by electro-magnetic induction in conjunction with insulated blankets) is started. Three-hour periods of fever of 105° and over are produced three times weekly to a total of twelve periods. There is no attempt to give the bismuth or other hemotherapy at the same time fever is produced. The treatment is merely carried on concurrently. After

the first course of soluble bismuth, arsenical compounds are introduced. This is usually in the middle of the course of fever treatment. In most of the patients a series of 20 aldarson injections at weekly intervals was given, each injection following the first consisting of 1.0 Gm. in 10 cc. of distilled water. The first injection given was usually 0.5 Gm. in 5 cc. of distilled water. A special series of patients was given more intense treatment with aldarson without preliminary use of bismuth. In these patients 1 Gm. was injected twice weekly up to 30 injections in the first series of treatments. Following this preliminary intense treatment, routine treatment was followed as for the other patients.

The total series of patients has been divided into three groups, an original group which has been followed for more than two years, a subsequent group which has been followed for varying intervals, including patients fairly recently treated, and the third group which was given more intensive treatment as mentioned.

The original group of 58 patients was given aldarson in the manner outlined, in conjunction

with fever and bismuth. The outstanding clinical observation in this group as well as in the others was the total absence of any toxic effect of aldarsones either immediately or late following its injection.

Serologic reversal with this drug as with all others in patients with advanced dementia paralytica is very slow to be achieved. The reduction of spinal protein and cell count to normal levels, however, occurs very rapidly, within two or three months following the beginning of the treatment.

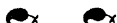
The number of patients released from the hospital on trial visit or discharged at varying periods following treatment compare favorably with those follow-

ing other drugs used in a similar manner.

The results in a somewhat larger later group accumulated after the first 2½ years of the use of aldarsones completely corroborate the safety of the drug in treatment, since no complications involving the optic nerve were found and no serious complications of any description were encountered.

The outcome of treatment in these patients was at least as good as and probably somewhat better than in patients treated with other drugs used in the same routine with fever and bismuth. It is believed that aldarsones represents a distinct addition to the chemotherapeutic armamentarium for use in neurosyphilis.

SDH—KOR



FULL-TIME VA APPOINTMENTS

Veterans Administration is making every effort to encourage doctors who complete residency training in one of its hospitals to accept full-time probational appointments in the VA's Department of Medicine and Surgery, Dr. Paul R. Hawley, chief medical director, said recently.

Upon the satisfactory completion of three years' probational work, appointments are made permanent.

Every effort is made to place these doctors in positions where they may practice their specialties and best serve ill and disabled veterans, Dr. Hawley added.

American Specialty Boards require that doctors, upon completion of formal residency training, serve additional time in the practice of their specialties under the guidance of certified specialists, who may be either full-time employees or consultant, to qualify for the Specialty Boards of their choice.—*Veterans Administration Release.*

"LIQUID" VERSUS "SOLID" PENICILLIN IN OIL AND WAX

The Effect of Particle Size and Type of Penicillin

By Harry F. Dowling, M.D., Monroe J. Romansky, M.D., Henry Welch, Ph.D., Jay A. Robinson, M.D., Velma L. Chandler, M.S., William W. Zeller, M.D., and Harold L. Hirsch, M.D., Washington, D. C.

Condensed from the Journal of the American Medical Association

THE incorporation of penicillin in oil and beeswax has been found to be a satisfactory method of prolonging the absorption of penicillin. Several modifications of the original preparation have now been made and utilized clinically. Crystalline sodium and potassium as well as the amorphous calcium penicillin were found suitable for use in the mixture. Furthermore, certain preparations were devised which were fluid at room temperature and did not require heating before injection.

Obviously the liquid preparations, utilizing crystalline penicillin, are preferable, if it can be demonstrated that they will produce as much prolongation of the blood penicillin concentrations as the amorphous and viscid preparations.

Because of the importance of determining which of the available preparations is the more suitable and because more data were needed to clarify these points, the present study was undertaken. A total of 252 patients in the wards of Gallinger Municipal Hospital

were treated with various preparations of penicillin produced by eleven manufacturers. Each subject was given 300,000 units of penicillin in 4.8% beeswax in oil contained in 1 cc. by a single intramuscular injection. Blood was collected at the 12th, 16th, 20th and 24th hour after injection.

When particle size and viscosity are not considered, the crystalline preparations are in general superior to the amorphous, when comparison is made on the basis of the number of subjects showing demonstrable concentrations of penicillin in the blood at various intervals after the original injection. Furthermore, each type of the crystalline mixtures was superior to the comparable type of amorphous.

The large particle preparations were apparently superior to those containing small particles when "solid" preparations were used, and definitely superior to small particle preparations when the "liquid" form was used. The best liquid preparation, that which contains crystalline penicillin in large particles, is as good as the

best solid preparations, namely, those which contain crystalline penicillin, whether in large or small particles.

The goal which the physician desires to achieve by the use of repository injections of penicillin is the maintenance of a therapeutic concentration of the antibiotic in the blood for the longest possible time. Since many preparations of penicillin in oil and wax lengthen the period during which therapeutic concentrations are present in the blood, it is desirable to determine which ones will do this best. Our investigations demonstrate that preparations made with crystalline penicillin are superior to those made with the amorphous material, provided that the particle size and the viscosity of these preparations are comparable. Furthermore, liquid preparations are as good as the viscid ("solid") preparations if 50% or more of the total relative weight of the particles consists of measurable particles greater than 50 microns. Liquid preparations containing penicillin or smaller

average particle size than this, whether amorphous or crystalline, are definitely inferior to the solid preparations. Since the liquid preparations are easier to administer, it is obvious that they will be the preparations of choice.

It should be emphasized, however, that the precautions observed for the "solid" preparations, namely, those concerning the use of dry needles and syringes and deep intramuscular injections, should be followed when the fluid preparations are employed. In addition, the fluid preparations must be shaken vigorously before use.

Preparations containing crystalline penicillin, which is more highly purified, can be stored at room temperature for 18 months as compared with only 12 months for the amorphous material. In addition, they give therapeutically significant blood concentrations for longer periods than the preparations containing amorphous penicillin. For these reasons crystalline will be preferred to amorphous preparations.

KAE—KOE



¶ Variety is the more odious and shocking to everybody, because everybody, without exception, has vanity, and two vanities can never love one another.—*Lord Chesterfield*

CHRONIC BRONCHIAL ASTHMA AND OTHER ALLERGIC STATES TREATED WITH ETHYLENE DISULPHONATE, UNDER WAR-TIME CONDITIONS IN BRITAIN

By John Bodman M.D., and Eugen Felix, M.D.

Condensed from the Medical Press

DURING the last 5 years, there have appeared in the United States a number of papers reporting clinical results with ethylene disulphonate in various allergic conditions. All of them recorded a remarkably high percentage of lasting relief with ethylene disulphonate after a period of observation up to 33 months.

In this series we have treated 152 adults and 8 children under the age of 17. The ages of the adults ranged from 17 to 75 years. The period of the duration of their allergic symptoms was from 6 to 40 years. Many of them, prior to seeing us, were treated on various routine lines without success, either privately or in hospitals. Wherever pathologic conditions were encountered, such as focal infection in teeth, tonsils or sinuses, these were removed as far as possible or treated independently. The average period of observation in the series was from 12 to 48 months. The average number of ethylene disulphonate injections was 3.2.

Before giving the first ethylene

disulphonate injection, a preparatory period of from 4 to 6 weeks was introduced, during which a low-fat, dry dietary was given, coupled with the intake of calcium chloride with a pectin base and small doses of tinct. belladonna. In our experience this regime, together with the exhibition of $\frac{1}{10}$ th gr. of thyroid daily, stimulates the detoxicative function of the liver, which is invariably diminished in allergic subjects. One week prior to the first injection of ethylene disulphonate, meat, alcohol, barbiturates and other sedatives were excluded. Two days before the first injection, intestinal toxemia was removed as far as possible by drinking one quart of cold or lukewarm water half an hour before rising, the water containing 2 level teaspoonfuls of common salt, and the whole quart to be consumed in 5 minutes. This produces a large watery evacuation in about 45 minutes, the effect being comparable with that of colonic lavage. In cases where the amount of water could not be taken, cathartics were used.

Two cc. ethylene disulphonate

injections were made deep in the triceps and were nearly always followed by rapid and uncontrollable fibrillations of the muscle, lasting from 1 to 8 minutes. In no case did giddiness or fainting occur. If, 2 weeks after the first injection, there was neither improvement nor worsening of the condition, a second injection was given, and this was followed by a third injection 14 days later. Third and fourth injections were given only when, in our opinion, the crest of the wave of recovery had passed. If the first injection had a good effect, we watched for 9 weeks before considering further injections.

Satisfactory results were obtained in 128 cases or 80%, and 32 cases or 20% showed no relief, although the frequency of the appearance of symptoms decreased somewhat. In every instance in this latter group, the muscle fibrillation after injection was very sluggish and of short duration. There was satisfactory improvement in 82.4% of the patients with asthma, 62.5% of the patients with hayfever and allergic rhinitis, and 91.6% of the patients with migraine.

It seemed of interest to investigate a series of cases with specific skin reactions and to study the clinical course in consecutive

treatment by desensitisation and ethylene disulphonate. Thirty-two patients with various positive specific skin reactions were selected at random. These cases were carefully and thoroughly desensitised with the respective allergens.

In our series of 32 cases, about 70% were failures and only 30% gained any practical relief from desensitisation.

Twenty-three cases out of the above 32 who had no clinical relief of their allergic symptoms after desensitisation were subjected to ethylene disulphonate medication. The results were very similar to those obtained in the whole group of 160 cases and showed a complete or practical relief in 17 (73.9%) and failures in 6 (21.6%).

During the administration of ethylene disulphonate, the patients in this group invariably showed an aggravation of their allergic paroxysms after the first injection. This mostly subsided after the second injection. The uncontrollable muscle fibrillations seen immediately after an injection were generally stronger than in non-desensitised cases, lasting five to eight minutes in every instance. The average number of ethylene disulphonate injections was also increased to 4.3.

STREPTOMYCIN THERAPY FOR CERTAIN INFECTIONS OF INTESTINAL ORIGIN

By Major Edwin J. Pulaski, M.C., and Colonel William H. Amspacher, M.C.

Condensed from the New England Journal of Medicine

THE purpose of the present communication is to enlarge on and bring up to date experience with infections of intestinal origin treated with streptomycin in Army hospitals under the auspices of the Surgeon General during the past 18 months.

BRUCELLOSIS. Up to the present time 25 cases of brucellosis have been studied in the Army streptomycin program, of which 12 were acute and 13 chronic. Because these patients were observed over a period of 14 months there was considerable variation in the amount of streptomycin that they received, as well as in the duration of treatment. By present standards some received too small doses for too short a time for beneficial results to be anticipated. The largest daily dose was 6 Gm.,—in 2 cases, for a 14-day period,—but some patients received only 1 or 2 Gm. daily for 10 days. The intermittent intramuscular route was used in all cases.

The over-all results, regardless of whether large or small doses were used, indicated clearly that streptomycin alone is not effective in brucellosis. In the acute

type of disease bacteremia disappeared in some, although not in all, cases while the drug was being administered, but recurrences were frequent, occurring in 5.

However, in 4 out of 5 cases a prompt response was obtained to the combined administration of streptomycin and sulfadiazine, after treatment by streptomycin alone had had no effect on the acute disease. The immediate favorable response has been sustained. It is still too early to state that permanent arrest of the disease was obtained but the combined method of treatment seems to deserve further trial as part of the general therapy of brucellosis. If it is employed, it is recommended that the dose of streptomycin be 0.5 Gm. intramuscularly and the dose of sulfadiazine 1 Gm. orally every 4 hours, and that treatment be continued for 14 days or more.

TYPHOID AND PARATYPHOID FEVERS. The fact that streptomycin is poorly absorbed from the gastro-intestinal tract and is not inactivated by the contents of the bowel suggests that its oral use in certain susceptible infec-

tions is logical and useful. The oral administration of 4 Gm. daily by mouth causes 0.01 to 0.02 Gm. per Gm. of feces to appear in the stools and rapidly eliminates gram-negative bacteria from the bowel.

To date, results in 6 patients with acute typhoid fever, 3 typhoid carriers and 2 patients with paratyphoid infections in the Army streptomycin program have been reviewed. All patients received from 2 to 4 Gm. of streptomycin daily for periods varying from 8 to 17 days. The combined oral and parenteral route was used in 3 cases, and the parenteral route alone in the other 3 cases.

The results were disappointing. In only 1 case of acute typhoid fever did the fever end within a sufficiently short time and recovery follow in such a manner as to suggest that the drug was responsible for the favorable outcome. It is perhaps significant that in this apparently successful case the patient, a 5-year-old child, received the dosage usually given to an adult which means that he received approximately three times as much streptomycin as any of the other patients were given.

In 2 patients who were typhoid carriers streptomycin failed to eliminate typhoid bacilli from the feces. In a third carrier disap-

pearance of typhoid bacilli from the bile and from a bone lesion coincided with the administration of streptomycin and may be attributed to its use. The administration of streptomycin was followed by a promptly favorable response and complete recovery in 1 patient with a paratyphoid infection.

ACUTE GASTROENTERITIS AND ENTEROCOLITIS. It is now quite well established that beneficial effects in varying degrees are obtained in bacillary dysentery by the use of sulfadiazine and sulfasuxidine but that these drugs are apparently of no value in *Salmonella* infections. Failures of therapy, relapses and the development of the carrier state can be variously attributed to late institution of therapy, premature termination of therapy, insufficient dosage and the presence of drug-resistant bacteria.

The development of a new chemotherapeutic agent — especially one that is less toxic than the sulfonamides, can be used in smaller doses and is even more effective in the treatment of gastro-intestinal infections—naturally commands attention. Streptomycin seems to fulfill these criteria.

The most recent communication of the National Research Council reported 2 cases of *Shigella* dysentery and 26 cases of

Salmonella infection treated with streptomycin. Both patients with Shigella dysentery had previously been treated with sulfonamide drugs without result. Stool cultures were positive in both cases before treatment and negative afterward. The period of follow-up observation was a month in 1 case and nine days in the other.

Among the 26 patients with Salmonella infections 10 recovered under treatment, 2 improved under treatment and later recovered, 6 showed no improvement, and 8 died, 2 of whom had shown transient improvement in the course of treatment. The average dose of streptomycin was 3 Gm. for 7 days.

The conclusion of the Council was that the high mortality in this series could be accounted for by the varying sensitivity to streptomycin of the various strains of Salmonella organisms, with the localization of the infection and complications of other diseases as possible additional factors. In view of the high mortality the recommendation was made that in Salmonella infections maximum doses (6 Gm. daily) of streptomycin be used as early as possible in the illness and that treatment be continued for at least 14 days. Since the offending bacteria are not confined to the lumen of the bowel but may penetrate into deep crevices and

mesenteric lymph nodes, the combined oral and systemic method of administration seems more rational than the use of either route alone and is recommended. Evidence to date does not suggest that, as is advisable when the sulfonamides are used, streptomycin should be withheld until normal hydration is restored. Toxicity has not been observed following oral administration of the drug.

BACILLARY DYSENTERY. Our experience with streptomycin therapy in bacillary dysentery includes 10 cases. In nearly every case the results were good to excellent. The response was most dramatic in cases in which treatment was begun in the first attacks, and in patients with recurrent diarrheas who received combined oral and parenteral therapy amounting to 4 to 6 Gm. daily for 12 days or longer. No case of relapse has been recorded in periods of observation ranging from 1 to 4 months.

Streptomycin therapy was tested in 2 cases of amebic dysentery and proved of no value. The dosage was 5 Gm. daily for 5 and 9 days, respectively, by the combined oral and systemic routes. The lack of results emphasizes the futility of employing streptomycin in any condition caused by organisms not susceptible to it.

COLITIS. Our experience with

streptomycin includes 16 cases of chronic idiopathic colitis and ileocolitis, in all of which the dysenteric disease had progressed from the acute to the chronic phase. In 1 case a culture revealed hemolytic streptococci. No causative organism could be isolated in any of the remaining cases. The diagnosis was based on the history, the symptomatology, positive roentgenologic observations, positive proctoscopic and sigmoidoscopic observations and the exclusion by proper tests of such specific conditions as bacillary dysentery, amebic colitis, tuberculous colitis, lymphopathia venereum and deficiency states.

All the patients had had a variety of previous treatments, including sulfonamide and penicillin therapy, with either no response or with only temporary improvement. This is in agreement with the general experience. Amelioration of symptoms has sometimes been obtained by the use of the sulfonamides and penicillin, but no significant series of cases has been reported in which lasting remissions could be directly attributed to chemotherapy.

Streptomycin was given in doses ranging from as little as 0.2 up to 2 Gm. at intervals of 3 to 6 hours, by the intramuscular or oral route or by both routes, for periods ranging from 4 to 62 days. Penicillin was also

given in 1 case. Improvement was considered to have occurred if there was a reduction in the number of stools, a decrease in or disappearance of blood in the stools, and relief from the concomitant symptoms of toxemia. On this basis temporary improvement was observed in all acute cases except 1 in which a hemolytic streptococcus was implicated as the etiologic agent. In the cases of chronic static disease some improvement usually occurred during therapy, but it was generally undramatic and seldom permanent.

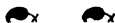
EPIDEMIC DIARRHEA. The present study comprises 13 cases of epidemic infantile diarrhea. No *Shigella* or *Salmonella* organisms of the usual pathogenic variety could be recovered from any of these cases. *Proteus morganii* and *Pr. vulgaris* predominated in all cases, but since these organisms are present in normal stools and tend to overgrow other bacteria readily, it is difficult to incriminate them as the etiologic agents. It is believed with reasonable certainty that no single organism was responsible for the infection in any case in the group.

No conclusions regarding the value of streptomycin therapy in epidemic diarrhea can be drawn from so small a series of cases. On the other hand, it was the considered opinion of those under

whom these cases were handled, that at least 4 of the 13 children are alive today because of streptomycin, which in all cases seemed to shorten the period of illness, control starvation and malnutrition and reduce the hospital stay. When a proper routine of usage has been established, a demonstrable reduction in mortality may reasonably be expected. Further studies should be conducted on infants with epidemic infantile diarrhea and non-specific gastroenteritis by the following regimen: parenteral fluids, in-

cluding blood and plasma to combat shock and restore water, electrolyte and protein balance; early oral feedings of 72 to 125 calories per kilogram of body weight if vomiting is absent; and streptomycin in adequate doses, 0.5 Gm. per kilogram of body weight being regarded as the minimal daily dose. Dosages up to 1.0 Gm. per kilogram of body weight should be utilized in critically ill children, regardless of age. The drug should be continued for at least a week after a satisfactory response has been obtained.

TAJ—KOE



FLYLESS CITY GETS POLIO

Tragic outbreak of infantile paralysis in Caldwell, Idaho, has given a new answer to one of the unsolved questions about polio.

The question is: Do flies transmit infantile paralysis to human beings?

This community, like others throughout Idaho, has waged successful war on flies. A voluntary campaign directed by local and state authorities has used DDT to wipe out common houseflies, blowflies, cowflies, mosquitoes and earwigs—the latter a cockroach like insect species assuming pest proportions in this region.

"We have no flies here," residents of Caldwell proudly tell visitors.

Scientists back this boast. They believe flies have been wiped out as a menace to health.

Yet two persons are dead, and new cases of polio in recent weeks have brought the total number of cases to 52 since July 10 in the area of this rural community of 8,700 persons.

When the scientists made a routine check on the fly population they were amazed at how few could be found. Their report may help clear the fly as a polio carrier.—*Science News Letter*, November 11, 52:231, 1947.

SURVEY OF TRAUMATIC SURGERY

By John J. Moorhead, M.D., New York, N. Y.

Condensed from the American Journal of Surgery

SUBSTANTIAL progress and outstanding gains have been made in traumatic surgery so that it has attained a very special place in the surgical field.

The stimulus and example set by surgeons in other fields of surgery has stimulated those engaged in traumatology to greater endeavor to defeat shock, hemorrhage and infection.

In appraising the experiences in traumatology we may assume that 80% of traumatic effects register as: (1) wounds; (2) burns; (3) joint and tendon involvement and (4) fractures and dislocations. In all of these we predicate the 3 major sequelae to be defeated are disability, deformity, and death.

Shock and hemorrhage are now more easily recognized and controlled by the use of blood and plasma.

The outstanding lesson from experience is that surgery and not antiseptics is the factor that overcomes infection in wounds. All organisms propagate on dead tissue and if robbed of this nutrient media they perish. This is the basis of debridement. This procedure will be performed properly if the damaged area is excised un-

til it bleeds freely, attains normal color, and contracts if muscles are involved.

The use of sulfa drugs in fresh wounds is more restricted now and will probably be superseded by penicillin or other antibiotics. Rather than using these drugs in or upon the wound we are relying more on intravenous medication.

Experience now indicates that some of our failures are due to reliance upon any one antiseptic to overcome every type of infection. The prudent surgeon seeks laboratory aid to confirm his opinion as to the prevailing type of infection. This does not mean that clinical signs are to be ignored before beginning treatment. There is no question as to the value of penicillin and its consorts in selected cases but the high tide of enthusiasm is on the wane in respect to their sovereign power in all wound infections. Experience asserts that there is no substitute for adequate surgery skillfully performed.

Soap and water cleansing is the best infection preventative in every type of accidental wound. If there is evidence of damaged tissue remnants, these are to be

removed by non-sacrificial debridement. Primary suture is reserved for the group seen within 6 hours after injury and in which tissue damage is minimal or removable. If in doubt, delayed suture is the preferable method.

A combined prophylactic serum for tetanus and gas gangrene should be routine if there has been an adequate source of infection, and especially, if the site is in thickly muscled areas.

Perhaps one lesson in the treatment of wounds will be the demonstrated value of infrequent dressings and sterile precautions to prevent reinfection while doing same.

In treating burns the aim is to cleanse promptly with soap and water, gently debride, apply massive dressings of splint proportions and not disturb for 7 or more days. This, in effect, is wound treatment plus the anti-shock fluid loss precautions. Early skin grafting is now a standard feature and the dermatone sheet-graft has prevented crippling and repeated procedures.

Joint and tendon involvement with wound introduces the infection element. Cleansing and debridement with prompt operation is the initial endeavor to combat infection. Sprains are best treated by non-restrictive strapping and early immobilization. Synovitis

and bursitis are aspirated at once. Activating of adjacent muscles by self usage is an essential adjunct, especially in the knee-joint. Tendon repair at the wrist is one of the major problems in traumatic surgery. An early repair means early assured recovery. After 6 hours infection often interferes and wisdom dictates a waiting period of several weeks since residual hidden infection may be stirred up by operative interference. Silk or cotton sutures rather than catgut should be used in tendon repair, not forgetting that inert wire also has a place. The many ingenious operations suggested for crucial ligament damage are not met with enthusiasm for the reason that most crucial lesions apparently repair themselves or associated ligaments take on their function.

In the arthritic group the making of a new joint with a plaster or metallic cap has been notably successful in some cases, especially in the hip-joint.

Disc disturbances can often be cured without operation, just as the knee-joint (the semilunars) are frequently amenable to non-operative relief. The successes with operative disc removal often does not exceed 50%.

Neurologic surgery has advanced appreciably, especially in regard to intracranial operations in which the electrocoagulation

technic has measurably averted hemorrhage.

There are a number of reported successes in peripheral nerve transplants. Much is being done in active rehabilitation in cases with post-traumatic paralysis following vertebral fracture. The principle of self-aid is now being properly stressed so that the co-operation of the patient has become the main factor.

Anesthesia is one of the great allies in traumatic surgery. Intravenous sodium pentathol has become a standard method and in many cases it is a safe agent for prolonged administration and it is also useful as a preliminary procedure to inhalation methods. Its simplicity and certainty of application should not lull one into

complete security, and at all times oxygen and coramine (or the equivalent) should be available.

Traumatic surgery is the most generalized type of surgery, in that any section of the body may be affected by injury. Thus, a traumatologist needs a background of knowledge and experience to render effective aid for any emergency.

An outstanding need for the future is the realization that trauma is an emergency and that a broken thigh is entitled to the same immediate attention as a ruptured appendix. Every hospital should be so staffed that an injured person is accorded the same early care now available for many types of general surgery.

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LKF—CHS



¶ Veterans Administration now is custodian of more than 53,000,000 Army chest X-ray films of World War II veterans, which it will use in its long-range anti-tuberculosis program. The films, which include those made of each Army veteran at the time of induction and separation, comprise the largest single group of X-ray films in the world.—*Release, Veterans Administration.*

USE OF NEW AGENTS IN THE TREATMENT OF EPISTAXIS

By Drs. Beverly A. Cope, and M. M. Hippskind

Condensed from the Eye, Ear, Nose and Throat Monthly

IN THE management of epistaxis new effective agents have become available to the general practitioner and the rhinologist in the use of the gelatin sponge and oxidized cellulose.

We have used this type of treatment of epistaxis almost exclusively in this clinic and have found uniformly good results. The advantages of its use are almost immediately apparent after application. First, one is able after use to have a nearly normal airway thus promoting comfort and not disturbing nasal physiology. Second, one is able to see by either anterior or posterior rhinoscopy, whether or not all bleeding has been stopped. This last factor is not possible with a common pack as there may be slow oozing into the pack. Third, the sponge does not have to be removed after application, thus eliminating the possibility of fresh nasal hemorrhage on removal of the packing.

The method of use of the sponge is as follows. First, the site of bleeding is determined after all old packing, debris, clots, and blood have been removed by gentle suction with a capillary tip. Second, the area lo-

cated may have an application of pontocaine (2%) with a drop of adrenalin 1-1000, for a few moments to establish some shrinkage and a little topical anesthesia. Third, a small gelatin sponge is cut to a size which will adequately cover the site of the bleeder and allow at least three to five millimeters extra surface around the site of bleeding. This pack is then introduced over the bleeding area; and held in place for a few moments while the edge of the sponge is tamped down to the mucous membrane. This usually controls the bleeding without any further manipulation being necessary. Fourth, the nose is checked periodically after introduction of the pack to see if there is any further oozing or bleeding. If there is none the pack is left in position and the nose left alone. The pack usually disappears in about four to five days, either by absorption or by being picked or blown out by the patient.

In the use of this material, one must have adequate suction available to remove clots and excess blood from the field in order to insure that the sponge will adhere to the mucous membrane and will not be swept away in the

massive flow of blood that sometimes occurs. The sponge after application must be tamped down around the edges in order that air currents will not get under the sponge and gradually insinuate it from its attachment around the bleeding site, prematurely causing recurrent hemorrhage. The edges can be tamped down easily with an applicator stick that is moistened in saline.

One does not need a lot of pressure to control most nasal hemorrhages. If the sponge comes in contact with nasal mucous membrane, it will stick provided it is held in position for a few seconds to become firmly adherent. It is sometimes difficult in the Kesselbach-Little area to get the sponge to stick, but in these cases of non-adherence it can usually be found that part of the

sponge is on the cutaneous margin of the columella. We have had little luck in getting the sponge to stick to columellar skin, so seldom attempt to fasten the sponge to this area, but trim it so that it will not come in contact with columellar skin.

If in addition to the fibrin-like network of the gelatin sponge, pressure is also needed, one might choose to use oxidized cellulose as, in our hands, it seems to be a little easier to pack into the posterior portions of the nasal fossa than the gelatin sponge and can be packed more solidly over an area than can the gelatin sponge. In the most common sites of nasal bleeding, though, the gelatin sponge lends itself to the control of the bleeding and controls the bleeding more rapidly than the cellulose.

FOH--KOR



§ Thirty or more different infantile paralysis-causing viruses may exist, Dr. Robert Ward, New York University College of Medicine, pointed out at a conference on the disease held at Warm Springs, Ga.—*Science News Letter*, October 4, 52:216, 1947.

"TROPIC" ULCERS OF THE HANDS COMPLICATING MYOCARDIAL INFARCTION

By Edward Shapiro, M.D., Maurice L. Lipkis, M.D., and Julius Kohn, M.D.

Condensed from the American Journal of Medical Sciences

CERTAIN maladies of the shoulder joint, subdeltoid bursa, palmar fascia and finger joints are recognized as sequelae of myocardial infarction. Although the precise mechanism of these disorders has not been described, most investigators favor the mediation of neurotrophic stimuli from the infarcted ventricle to the cervical dermatomes and metamerics coordinated with the cardiac nerves.

Cutaneous lesions, however, have not been described in this connection. It is now possible to record a case in which, promptly after a myocardial infarction, there appeared symmetrical cutaneous vesicles which ruptured to leave deep, slowly healing, painless ulcers of the digits.

CASE REPORT: A. B., a 49-year-old white man, first noted angina pectoris when he was 41. He suffered his first myocardial infarction in March 1945.

During the night of March 9, 1946, he was stricken with an acute posterior myocardial infarction. The pain was very severe, but like his angina and prior attack, was limited to the chest; at no time had he experienced pain in the hands, arms or shoulders. Two grains of morphine sulfate were required to allay the distress. About 12 hours after the onset, he noted 2 vesicles symmetrically placed over the metacarpophalangeal joints of the in-

dex fingers. The thin coverings of these blisters ruptured spontaneously the next day and deeply punched-out painless ulcers were left, the right being twice as large as the left. The escaping fluid was noted as colorless. A coagulum formed quickly in the base of each ulcer; the pink halo of surrounding inflammatory reaction was slight. The ulcers were filled in from below the coagula and from the sides, until after some 10 or 12 weeks only whitish-pink depressed scars remained. At no time in the course of the ulcers was any pain whatsoever experienced. There were no neurologic signs, no thickening of the palmar fascia, no arthritis of the hands, and no evidence of bursitis of "shoulder syndrome."

We are of the opinion that the symmetrical ulcers of the hands of the patient reported are the result of the myocardial infarction, and are, therefore, related to the painful shoulders, the disability of the hands, and Dupuytren's contracture reported in the past decades and now recognized as late complications of the cardiopathy. In the same category, also, are the less well-known phenomena of localized sweating of the chest and arm replacing cardiac pain, herpes zoster of the thorax in the course of coronary disease, and paroxysmal ocular ptosis with angina.

We believe that impulses from the infarcted heart mediated anti-

dromically through sensory nerves may be responsible for the trophic changes described in our patient. We also suggest that antidromic impulses may be the mechanism of production of the other maladies of the shoulder and hand following myocardial infarction.

In 1876 it was discovered that the skin of the limb flushed when the cut posterior spinal nerves were stimulated peripherally. Langley later showed that this reaction could be prevented by section of the peripheral sensory nerves and might be produced by the distal excitation of these fibers. These oft-confirmed experiments proved to Lewis that the nervous impulses "are carried by the sensory nerves antidromically and, ultimately, so it has been supposed, to reach the vessel

through sensory nerve off-shoots."

Lesions identical to herpes zoster may follow invasion of the posterior root ganglion by either malignancy or trauma. Blisters and "trophic" ulcers, likewise, frequently follow injuries of peripheral sensory nerves. Occasionally, herpetiform lesions accompany causalgia. Thus, to use Lewis' words, "herpetic or herpetiform eruptions occur as sequels to lesions of the sensory nerve tracts; not only do they follow irritative lesions of the ganglia but they are produced also by lesions of those tracts distal to the ganglia themselves." It is this line of reasoning which leads us to offer the possibilities of antidromic conditions causing the disturbances reported above.

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DMP--RDD



- ❧ Twenty thousand ill and disabled patients in Veterans Administration hospitals are making profitable use of their long hours in bed by studying correspondence courses ranging from high school English, mathematics and history to bookkeeping, farming and carpentry. —*Veterans Administration Release.*

VITAMIN K AND LATE TONSILLAR HEMORRHAGE

By Samuel L. Fox, M.D., and G. Brooks West, Jr., M.D., Baltimore, Md.

Condensed from Laryngoscope

RECENTLY several reports have appeared in the literature concerning the supposed value of vitamin K in reducing the incidence of late tonsillar bleeding. It was postulated by the advocates of this therapy that late tonsillar bleeding was due to a salicylate (aspirin or aspergum) induced hypoprothrombinemia, which the administration of vitamin K would prevent.

A total of 504 adenotonsillectomy patients have therefore been studied. Group I included 199 patients who used Aspergum as desired throughout the postoperative period. No other medication was prescribed or used, except codeine in adults. Of this number, 17 patients reported bleeding after leaving the hospital. This represents an incidence of 8.5%.

In Group II, 128 patients took 10 mg. of Synkavite (synthetic vitamin K) twice daily for seven days postoperatively along with Aspergum as desired. Codeine was prescribed for the adult patients. In this group, 13 patients reported postoperative bleeding. This represents a 10.5% incidence of late tonsillar bleeding.

Group III consisted of 184 patients who were not permitted to

use Aspergum at all, and no Synkavite was taken by them. Codeine was prescribed for the adults (as it has been shown that codeine does not affect the prothrombin time), but no other medication was given this group. These patients were permitted to chew ordinary (candy) chewing gum freely, and most of the older children and adults did so to relieve troublesome muscle spasm. There were only two cases of secondary postoperative bleeding in this group, or an incidence of 0.1%.

A comparison of Groups I and II in this series fails to reveal any protective action afforded by vitamin K (Synkavite) in late tonsillar hemorrhage. It is felt that the high incidence of late tonsillar bleeding in patients using Aspergum is due probably to some local effect on the wound.

Although it has been almost 18 years since Dam began his classic experiments leading to the discovery of vitamin K, the clinical uses of the vitamin have been relatively slow of acceptance. The first uses of vitamin K were limited to the most obvious clinical applications, as for physiologic hypoprothrombinemia of the

newborn and for the prevention of hemorrhages in operations upon patients with liver, intestinal or biliary disease where there was a lack of absorption or production of vitamin K. During the past five years its therapeutic applications have been greatly extended, and thorough investigations have been made of its physiologic action and its relationship to other drugs. These investigations include studies of hemorrhagic disease of the newborn hypoprothrombinemia produced by drugs (i.e., sulfonamides, salicylates, dicumarol, etc.) and miscellaneous hemorrhagic syndromes.

Reliable clinical and laboratory experiments have proven that salicylic acid or salicylates will prolong the prothrombin time when administered in large doses to animals or man, whether a normal or abnormal prothrombin time is originally present. The administration of salicylates in these experiments was within therapeutic doses and continued from three to 14 days.

In regard to the hypoprothrombinemia produced by drugs, it is believed the action takes place by one of three ways: (A) by inhibiting the action of intestinal bacteria which normally synthesize vitamin K in the intestinal tract; (B) by substituting for or competing with vitamin K

in some of the metabolic processes; or (C) by causing damage to the liver so that vitamin K is not properly utilized for the formation of prothrombin.

It was believed that the hypoprothrombinemia produced by salicylate therapy could be prevented by the administration of vitamin K. This vitamin is necessary for the synthesis of prothrombin, which takes place in the liver. Clausen and Jager state that salicylates block the utilization of vitamin K and that this is probably the basis of the hypoprothrombinemic effect.

The amount of salicylate necessary to produce bleeding tendencies in an otherwise normal individual has received much attention. Butt, et al., showed that when sodium salicylate was given in doses of 10 Gm. a day, the prothrombin was not reduced to a hemorrhagic level in uncomplicated rheumatic fever cases.

In this series late tonsillar bleeding occurred most often during July, August and September, but no adequate scientific explanation can be offered for this. Several factors have been suggested to account for the increased incidence during the hot season. Secondary infection and putrefaction may be more marked in hot weather, and dehydration is also more common, as the water loss is greater and the in-

take is usually restricted by the patient as a result of local discomfort on swallowing.

All patients in this series were operated upon by one or the other of the authors by an identical

technic which consists of sharp dissection throughout and the control of all bleeding points by No. 0 or No. 1 plain catgut free ligatures.

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FOH—RDD



RENAL COMPLICATIONS IN CHILDREN RECEIVING SULFONAMIDE DRUGS

Though reactions to sulfonamide drugs are infrequent in infants and children, the question arises as to what steps should be taken to prevent the renal complications. The routine use in children of alkalis with sulfa drugs is a debated procedure. The use of alkali in pediatric patients introduces difficulties in forcing children to take the relatively large amounts of soda needed to render the urine effectively alkaline. In addition, the tendency of alkali medication to induce refusal of oral fluids has been used as an argument against its routine use in younger patients. An interesting suggestion has recently appeared, advising use of a sulfadiazine-sulfathiazole mixture in an effort to lower the incidence of mechanical renal difficulties. The precipitation of sulfonamides in the urinary tract is largely dependent upon the solubility and concentration of these compounds in the tubular urine. Solubility studies with sulfonamides revealed that sulfathiazole, sulfadiazine and sulfamerazine could be dissolved simultaneously in the same sample of water or urine to the point of full saturation of each compound when present alone. The concentration of the three drugs in a saturated solution represented, therefore, the sum total of their individual solubilities. The danger of intrarenal precipitation from the drugs comprising such a mixture should only be as great as if each compound had been administered alone and in the partial dosage contained in the mixture. The validity of this conception was substantiated in animal experimental studies as well as in clinical trials.—*H. Bryan Hutt, M.D., Cleveland, American Practitioner, February, 1:317-323, 1947.*

KAE—KOE

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DIGEST OF TREATMENT

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❏ The unsolved problem is the prevention of recurrence.

MEDICAL TREATMENT versus PREVENTION OF PEPTIC ULCERS

By Theodore L. Aitihousen, M.D.

Condensed from California Medicine

THE present handling of the problem of peptic ulcer is unsatisfactory. This is attested by the eagerness with which both physicians and victims of the disease greet the announcement of every newly proposed remedy. In order to avoid confusion and to appraise this problem in the proper perspective it is necessary to distinguish between the treatment of the individual acute ulcer episode and the measure designed to combat the tendency to recurrent ulcers.

The present methods for treatment of uncomplicated ulcer as used in the leading clinics are effective in producing prompt relief and in healing the ulcer in a matter of weeks in over 90% of the cases. For this reason there is no room for radical improvement so far as results of treatment in the individual attack of ulcer are concerned. When difficulties arise it is usually from failure to apply the well known methods of therapy on the part of the physician or from lack of co-operation on the part of the patient.

The classical ulcer treatment was originated by Sippy in 1912.

Three years later his first results were published, indicating successful healing of the ulcer in 85% of cases. Since then various relatively unimportant modifications of this treatment have been introduced. The most significant of these is the use of insoluble or relatively insoluble antacids. The routine treatment of uncomplicated peptic ulcer at the University of California Gastro-intestinal Clinic is carried out under ambulatory conditions. During the first week the diet is limited to a milk and cream mixture taken every two hours with antacid powders one hour after the mixture. Sedative and antispasmodic medication is administered three times a day. During the second week this schedule is continued with the addition of certain foods only if complete relief from pain has been achieved during the first week. These additions consist of eggs, cottage cheese, white bread, potatoes, macaroni, rice, oatmeal and cream of wheat at meal times. Sugar, salt and butter are also allowed. During the first two weeks of treatment great emphasis is placed on the regularity of

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(*California Medicine*, December, 67: 371-374)

food intake and antacid medication (not more than five minutes before or after the hour). Beginning with the third week, cooked fruits and pureed vegetables are added and the punctuality of the schedule is relaxed. Gradual additions to the diet are made with less frequent administration of milk until, in the average case, the patient is on a general diet three months after beginning of treatment. All medication is carried out for at least four months and antacids are continued for at least six months from beginning of treatment.

If complete relief from pain is not obtained during the first week, rest from work, bed rest at home or in the hospital, nocturnal intragastric drip of aluminum hydroxide (Winkelstein), and psychotherapy are prescribed as dictated by circumstances.

There is an unfortunate tendency among many physicians to think that the described or kindred modifications of the Sippy diet are too strict to be practical for most of their patients with peptic ulcer. This is true even of some of those who had opportunity to observe the excellent immediate results of this type of treatment in their senior year in medical school and during their internship. As a result compromises are made going all the way to the vague advice to

"drink a lot of milk" and the administration of antacids limited to three times a day. In the first place, such compromises increase the number of patients who fail to respond to medical therapy. These patients, are, therefore, labeled "intractable" and subjected to surgical operations. In the second place, inadequate treatment may bring about a state in which the patient loses his pain entirely or partially while activity in the ulcer continues in a latent form. This is especially true of individuals who are hyposensitive to pain. Crohn has shown that the proportion of such individuals among patients with peptic ulcer is about three times greater than in the general population, so that this characteristic applies to a majority of ulcer patients. It is difficult to determine exactly how often such a state of latent activity occurs in a given series of patients under treatment. Frequent roentgenologic checks are helpful, but not altogether conclusive and, unfortunately, expensive. Probably the most generally applicable criterion of the incidence of latent activity in ulcers under treatment is the number of patients experiencing a return of pain during the later stages of the ulcer regimen or soon after cessation of treatment in the absence of known "incit-

ing" causes of recurrences. Such patients are often classified as having "spontaneous" recurrences.

The tendency of patients who have had one episode of peptic ulcer to have subsequent episodes is very great. It is clear that the chief unsolved problem confronting the medical profession in connection with peptic ulcer in general, and the much more common duodenal ulcer in particular, is not the healing of the current ulcer episode but the prevention of recurrences.

The important known "inciting" causes of recurrences are: physical or mental fatigue, emotional disturbances, dietary indiscretions, and respiratory infections. In dealing with the causes of ulcer recurrences from the prophylactic point of view, it is obvious that at present the only practical medical approach is education of the patient. It is here that the physician often fails the patient by neglecting to inform him of the true nature and probable future course of his disease if proper precautions are not observed indefinitely.

Before embarking on such a far-reaching educational campaign, it is essential in each case to establish firmly the diagnosis of peptic ulcer in order not to place an unfair burden on the patient and, as a secondary con-

sideration, not to waste the physician's time. The diagnosis of peptic ulcer should not be lightly made, and preferably positive roentgenologic evidence should be obtained in each case. Least of all should the term "ulcers" be used as a cliché to satisfy an inquisitive patient with indigestion of undetermined origin. Also excessive reliance should not be placed on the roentgenologic examination alone, especially if it is not performed by a competent full time radiologist. Old scarring of the duodenum, coarse rugae or extrinsic pressure may produce a roentgenologic appearance suggestive of ulcer.

In dealing with ulcer patients and especially in trying to persuade them to observe certain precautionary measures for a period of many years, if not for the rest of their lives, it is necessary to take into account their personality. The typical patient with a peptic ulcer is a tense, ambitious, meticulous, over-conscientious person who minimizes his pain, in contrast to the usual psychoneurotic or hypochondriac patient who habitually exaggerates his symptoms. The ulcer patient often neglects his treatment because it interferes with his work, unless the physician makes a determined effort to enlist the patient's co-operation by explaining to him the essentials

of the ulcer problem. After this is done many patients are converted to a meticulous observance, not only of the immediate therapeutic regimen, but also of the long range prophylactic measures. It is also worthy of note that the tensions of most ulcer patients, as is pointed out by Lion, are associated with an occupational predicament or, less frequently, with other objective difficulties of a domestic or financial nature. For this reason the physician should inform himself particularly about the nature of the patient's work, his ambitions, his working hours and surroundings, how his evenings and weekends are spent, whether the patient takes any vacations and what he does with them. The family relations, financial affairs, and any other matters which may be close to the patient's heart should be explored for possible sources of tension.

At the time the diagnosis is discussed with an often over-anxious patient it may be necessary to reassure him, especially if he fears that the ulcer "will turn into cancer." Since the large majority of peptic ulcers are duodenal in location, fortunately one can be very emphatic in denying this possibility in these cases. To patients with gastric ulcers the precautions to rule out the threat of cancer by re-

peated roentgenologic examination should be explained. Later the patient must be informed frankly that peptic ulcer is, as so well defined by Jones, "a chronic, incurable disease characterized by ulceration of the stomach or duodenum and subject to intermittent relief from symptoms, as well as to unpredictable or frequently predictable recurrences. A condition which, while capable of being handled during acute phases, does not respond to treatment in such a manner as to provide a complete and lasting cure. Complete cures . . . are the rare exception; recurrences are the rule."

Having imparted to the patient a general understanding of the problem of peptic ulcer, including a brief mention of the common complications of stenosis, hemorrhage and perforation, the physician can proceed to a discussion of practical preventive measures as they apply to the individual circumstances of the case. The patient's work predicament, if any, is discussed and its importance pointed out. It is often possible for the physician to make constructive suggestions on how to lighten the occupational burden. In extreme cases a change of occupation may have to be advised. Emotional disturbances involving family or financial matters or other frustra-

tions should be tactfully inquired into. If such troubles are present, an effort should be made to solve them, or, when this is impossible, an attempt should be made to inculcate in the patient a more detached attitude toward his difficulties. In major cases it is necessary to enlist the services of a psychiatrist. The importance of moderation in eating is then taken up. The strictness of instructions in this direction depends on the amount of permanent scarring in the duodenum, on the degree of residual hyperacidity and hypermotility, and on the estimate of the patients' tendency to discount medical advice. It is of great advantage if the patient can be induced to abandon the use of coffee, tobacco and alcohol. However, compromises in these respects are often advisable, lest by insisting on excessively strict measures (from the patient point of view), he is prejudiced against

the whole program of preventing recurrences. Finally, the patient should be impressed with the importance of taking care of colds. Most important are regular measurements of temperature during respiratory infections with bed rest for the duration of the febrile period, if any, and warning against excessive use of medication containing aspirin.

During periods of unavoidable fatigue or emotional stress the patient must be instructed to go on a protective diet eliminating coarse and irritating foods, and to resume medication with antacid, antispasmodic and sedative preparations of which he should keep a supply at home for such contingency. In addition to these precautions the patient should be prepared to handle any recurrence of ulcer pain by going promptly on the first stage of the strict ulcer diet and reporting at once to his physician.

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TAJ—RDD



HEPARIN IN THE TREATMENT OF FROSTBITE

Lange and his co-workers produced experimental frostbite in 15 human volunteers. Heparinization within 48 hours was effective in preventing gangrene which developed in the control subjects.—Kurt Lange, David Wiener and Linn J. Royd, *The New England Journal of Medicine*, September 11, 237:383-389, 1947.

LBL

SADDLE BLOCK ANESTHESIA IN OBSTETRICS

By E. L. King, M.D., and Isadore Dyer, M.D.

Condensed from the New Orleans Medical and Surgical Journal

"SADDLE BLOCK" is a term used to designate a low spinal anesthetic, with the effects confined chiefly to the perineal region. We have resorted to this method in obstetrical work with increasing frequency in the past 2 years. Herewith we present our studies of 50 patients delivered vaginally within the past 6 months, for whom saddle block was used.

We use a solution which consists of 1 cc. of 10% glucose, 1 cc. nupercaine (5 mg.), and $\frac{1}{2}$ cc. of epinephrine. This is introduced slowly into the third or fourth lumbar interspace, with the patient in a sitting position. She is kept sitting up for 90 seconds, then lies flat, with her head elevated on pillows.

Analgesia is established within 3 to 5 minutes, and is manifested chiefly by a complete abolition of the pain of uterine contractions. If properly given, the abolition of sensation extends to, or slightly below the level of the umbilicus, associated with partial or complete loss of motor function of the lower extremities. The effect persists from 2 to 4 hours. Little or no fall in blood pressure occurs. Ten to 15% of pa-

tients develop nausea and vomiting within the first hour; the mechanism of this is not understood.

It is important that analgesia not be administered until labor is well established, and the cervix is at least 75% effaced and well dilated. The presenting part should be at the level of or below the ischial spines, and definite progress should have been evident within an hour of administration.

In our series there were 36 primigravida and 14 multigravida. All the infants were vertex presentations. There were 3 cases of postpartum complications (one each of mastitis, pulmonary atelectasis, and retained secundines), none of which could be attributed to the saddle block. The analgesia was satisfactory in every case, and lasted on the average $3\frac{1}{2}$ hours. Only 5 babies required resuscitation; none, however, was deeply asphyxiated. Fifteen patients required postpartum catheterization. There was no infant or maternal mortality.

POINTS TO BE STRESSED. Saddle block anesthesia is to be used only in a hospital, and to be

given by a trained anesthetist. It is applicable to about 50% of patients.

Many primipara will go entirely through the first stage of labor without need of analgesia; many multipara have such rapid labors that this type of anesthesia cannot be used. It must not be used too early in labor.

In patients with cephalo-pelvic disproportion, moulding of the

fetal head is retarded, as are also rotation of posterior positions, and descent, when the block is used.

Saddle block anesthesia is better than heavy sedation and gas anesthesia, as far as the baby is concerned.

Although there is a tendency for spontaneous rotation to be retarded, relaxation of the soft parts facilitates forceps delivery.

CFL—HRJ



TREATMENT OF ACUTE PERIPHERAL ARTERIAL OCCLUSION (EMBOLISM AND THROMBOSIS)

1. Relieve pain.
 - a. Opiates as needed.
2. Avoid measures which do harm, such as
 - a. Application of heat.
 - b. Elevation of the extremity.
3. Administer anticoagulant agents
 - a. Heparin and dicumarol.
4. Relieve arterial spasm
 - a. Heat
 1. Warm environment; room temperature about 90 F.
 2. Apply warm packs to other than involved extremities.
 - b. Alcohol by mouth (liberally!); Papaverine.
 - c. Anesthetization of appropriate sympathetic nerves.
 1. Spinal or caudal anesthesia.
 2. Paravertebral anesthetization of sympathetic nerves.
 - d. Oscillating bed if available.
5. Embolectomy, provided medical treatment is not effective in greatly improving the circulation within 6-12 hours and provided hopelessness of saving the limb is not already apparent.—*Edgar V. Allen, M.D., The Journal of the American Medical Association, September 6, 1935:15-17, 1947.*

LBL

MODERN VIEWS ON AND TREATMENT OF PHLYCTENULAR CONJUNCTIVITIS

By James H. Doggart, M.D.

Condensed from the Medical Press

NOT everyone is agreed concerning the precise relationship of this malady with tuberculosis, but, whatever views may be adopted concerning the etiology of phlyctenular disease, no one can deny that phlyctenules are far less common today than they were a generation ago. We may also derive encouragement from the growing number of medical men who recognize that phlyctenular disease must be combated by prolonged general medical treatment. The former practice of merely tiding over the immediate attack by means of local remedies has rightly become discredited, so that recurrence is now less often seen, and fewer children's eyes sustain lasting damage.

Although the title of this disease is derived from a Greek word meaning "blister," no genuine vesiculation has ever been demonstrated. Histology has shown that phlyctenules are solid aggregations of round cells or lymphocytes. In a typical early case these nodules are grey or greyish-yellow in colour, and arise at or near the limbus, i. e., the outer margin of the cornea. They

may be single or multiple, and are invariably accompanied by some engorgement of the conjunctival vessels. Although the disease is commonly bilateral, one eye may become involved days or weeks later than its fellow, and the degree of severity may differ widely in the two eyes. Some of the victims at first display copious mucopurulent discharge, in which staphylococci or other organisms may be detected. After a few days, however, copious watering of the eyes usually replaces the secretion of muco-pus.

An attack of phlyctenular conjunctivitis may be dispersed within a few days by means of ocular treatment, or may subside spontaneously; but that does not mean the end of the disease. Relapse or recurrence is the rule during the susceptible years of childhood, unless the general bodily state can be improved. At every successive attack the phlyctenules tend to encroach farther and farther upon the surface of the cornea, accompanied by superficial new-formed vessels. The latter may far outrun their original reparative purpose, rendering

the corneal surface irritable and irregular. When once phlyctenules are implanted upon the cornea, they are apt to ulcerate, leaving permanent opacity in their wake, however firmly healing may afterwards be established.

In many cases the nodules characteristically found near the limbus at the onset of phlyctenular conjunctivitis are no longer manifest after the disease has spread to the cornea. We may instead be confronted with fascicular keratitis, in which a grey band of vascularised infiltrate advances from the periphery until it comes to menace the corneal axis, i. e., the region of the cornea that covers the centre of the pupil. Clearly a small faint scar at the axis will interfere more seriously with vision than will a comparatively large dense opacity beside the limbus. The encroachment of opaque infiltrate from the edge of the cornea to its centre takes time, and is seldom continuous. It is only after numerous recurrences, which may be spread over several years, that the process reaches so disastrous a culmination.

Central opacity of the cornea is not the only unhappy consequence of phlyctenular disease. Even in cases which escape serious impairment of vision, the

children's education is hampered by repeated absence from school, and their imagination warped by long-drawn-out discomfort. Therefore lasting cure at an early stage of the disorder is particularly to be desired for the victims of phlyctenular disease.

ETIOLOGY. Many authorities have come to the conclusion that a phlyctenule is a kind of spontaneous Mantoux reaction. They believe that, although phlyctenules do not contain tubercle bacilli or giant-cell systems, yet the phlyctenule is tuberculous in the sense that it represents an allergic reaction to some relatively trivial attack upon a tissue previously sensitized by a lesion elsewhere in the body. According to this theory, any local ocular insult, such as slight trauma or a mild staphylococcal infection, may act as the trigger, when once the necessary train of explosive has extended to the organ in question (the eye) from the essential lesion elsewhere in the body. Most of those who advocate the theory will admit that a tuberculous lesion is not the only kind capable of setting up such a train of explosive. They do maintain, however, that tuberculosis is the radical cause in a large proportion of the victims of phlyctenular disease, and this claim is supported by statistics purporting to show that,

when a series of phlyctenular children is compared with a control series of equal-aged children suffering from e. g., blepharitis, the former exhibit a higher incidence of (a) family history, (b) personal history and (c) radiographic evidence of tuberculosis.

TREATMENT. (a) Local.—Dark glasses to protect the eyes from glare, irrigation twice a day with normal saline, and the application of 1.0% atropine in the form of drops or ointment, will constitute enough local treatment in most cases, provided that adequate general measures are available. If there is muco-purulent discharge, oxycyanide of mercury, 1 in 10,000, may be substituted for saline. Yellow oxide of mercury is irritating, and should not be used. Penicillin is seldom indicated, and evidence accumulates to show that many patients exhibit a violent reaction to this drug, whatever medium may be employed for its administration. Indeed, it must

once again be emphasized that local treatment is far less than half the battle in phlyctenular disease, and, so long as the appropriate general regime is instituted, it is better to neglect local applications rather than to aggravate the ocular condition by drastic measures of local therapy.

(b) General.—As soon as a diagnosis of phlyctenular conjunctivitis has been authoritatively made, arrangements should be made to transfer the child to a place in the country where plenty of good food can be given under medical supervision. The chances of recurrence are minimized if such a regime can be continued for at least 3 months after the signs of ocular inflammation have disappeared. Meanwhile attention can be directed towards any associated lesion that may require treatment. In this connection it is worth making special mention of chronic tonsillitis, from which a number of phlyctenular children suffer.

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FOH—RDD



HYPERTENSION TREATED BY INJECTIONS OF WATER

From Russia comes the report that blood pressure may be lowered by 30 to 60 mm. for long periods following six to eight injections of distilled water.—*B. A. Ruskin, American Review of Soviet Medicine, March, 3:260, 1946.*

L.B.L.

STREPTOMYCIN IN THE TREATMENT OF TUBERCULOSIS IN HUMANS

I. Meningitis and Generalized Hematogenous Tuberculosis

By Walsh McDermott, Carl Muschenheim, F.A.C.P., Susan J. Hadley, Paul A. Bunn,
and Rosemary V. Gorman, New York, N. Y.

Condensed from the Annals of Internal Medicine

AN investigation of streptomycin in the treatment of tuberculous infections was initiated on the Cornell-New York Hospital Medical Service in January, 1946. The present report is based on the observation of 17 patients with meningeal, miliary or other forms of generalized hematogenous tuberculosis who were treated during the first 18 months of the study.

A uniformly prepared and highly purified streptomycin sulfate was used. Its preparation and properties have been presented elsewhere. A constant total daily dose of three Gm. of streptomycin administered intramuscularly in six or eight divided doses was used in all 12 of the adult patients. In the five children and infants, the dose was adjusted to body weight (20,000 micrograms per kg.). In general, the total period of therapy was 120 days. Patients with meningitis received streptomycin intrathecally as well as by the intramuscular route. Individual doses of 0.1 to 0.375 Gm. (0.05 to 0.1 Gm. in infants) were adminis-

tered at intervals ranging between 24 and 72 hours for total periods of 60 to 90 days. As evidence was soon obtained that individual doses of 0.2 to 0.375 Gm. were not always well tolerated, the 0.1 Gm. dose was not exceeded throughout the greater part of the investigation.

On the basis of the results obtained in this study, it appears that streptomycin exerts a striking effect upon the course of generalized hematogenous and meningeal tuberculosis. The results are thus in complete agreement with the observations previously reported by Hinshaw and Feldman.

In the present study, evidence of therapeutic activity is afforded by: (1) the uniformity with which the administration of streptomycin was accompanied by marked clinical and roentgenologic improvement; (2) the disappearance of tubercle bacilli from those discharges in which they had been easily demonstrable before therapy; and (3) an impressive degree of healing of the lesions in the lung, as revealed

by histologic examination.

Six adults with bacteriologically proved meningitis, miliary, or other generalized hematogenous forms of tuberculosis are in complete remission five to 12 months after the cessation of streptomycin therapy. A seventh individual, though not entirely well, is alive one year after acute miliary tuberculosis and is apparently recovering.

Spontaneous recovery in miliary tuberculosis and in tuberculous meningitis is distinctly unusual. The incidence of apparent recovery reported by Hinshaw and Feldman and encountered in this study is unprecedented and is presumably attributable to the action of the streptomycin.

In contrast to the satisfactory outcome observed in these seven individuals, in another group of seven with miliary tuberculosis, six have died as a result of their disease and the seventh is not expected to recover. The several months' period of improvement, which appeared soon after the start of streptomycin therapy, was equally striking in both groups. Thus the antimicrobial therapy of tuberculosis is essentially similar to the chemotherapy of other infections. The institution of treatment results in a remission of the infection, permanent in some instances, but followed by relapse in others if

the host is unable to maintain control of the infection once antimicrobial action has been withdrawn or ceases to be effective.

In the present study, it appears that the immediate causes of therapeutic failure were the development of drug-resistant strains of tubercle bacilli in four cases and the appearance of meningitis in two.

In support of the assumption that four of our patients harbored infections which were drug-resistant *in vivo* are the following observations: (1) During the first 30 to 90 days of streptomycin treatment, there was an hitherto unprecedented regression which presumably represented an effect of the antimicrobial therapy; (2) Despite the continued administration of the drug, however, there was a reappearance of all of the clinical, roentgenologic and bacteriologic evidences of miliary tuberculosis in four instances, and a similar relapse 17 days after the cessation of therapy in a fifth individual. During relapse, a fresh dissemination of organisms occurred under therapy in at least two patients, as shown by the appearance of bacteremia and choroidal tubercles; (3) Unlike the course displayed in the early phases of treatment, all four of the second bouts of miliary tuberculosis were completely uninfluenced by strep-

tomycin and steadily progressed to a fatal termination; (4) At postmortem examination, bacilli obtained from the lesions were as resistant to streptomycin *in vitro* as the organisms cultured during life; (5) The appearance of relapse coincided in time with the appearance of tubercle bacilli which were highly resistant to the action of streptomycin *in vitro*; (6) Conversely, drug-resistant bacilli were never obtained from the seven individuals who recovered from meningeal, miliary or other forms of generalized hematogenous infections.

The mechanisms by which microorganisms develop resistance to antimicrobial agents are poorly understood. It is possible that there is no unitary explanation of the phenomena, but that several different types of mechanism may be operative. Regardless of which of the currently held explanations of the phenomenon may be correct, it would seem that streptomycin-sensitive bacteria will eventually become streptomycin-resistant if they are continuously or repeatedly exposed to the drug in a situation in which complete healing or arrest of the lesion fails to occur. It is by no means clear whether the bacteria which remain within the host after apparent arrest of the lesions also become drug-resistant, but there is reason to believe that

they may not. In two instances in the present series, lesions which healed under therapy, and hence discharged no demonstrably resistant tubercle bacilli, relapsed three to four months later and were apparently still susceptible to the effects of streptomycin.

The high incidence of bacterial resistance when unhealed lesions are present for more than a few months of therapy creates a therapeutic dilemma in the treatment of miliary tuberculosis. The goal of antimicrobial therapy is to establish control of an infection for a sufficiently long period to afford opportunity for the host to mobilize mechanisms for permanent control. The very fact that generalized hematogenous tuberculosis becomes established at all indicates either that the usual mechanisms for the localization of tuberculosis infection are not operative or that a purulent focus has unusually direct and continuing access to a major vascular channel. In either of these situations, in order to avoid relapse, it would be necessary to maintain antimicrobial therapy for a much longer period than would be required for a process already localized by the host to an area of lung. Thus in the treatment of miliary tuberculosis, it would seem reasonable to continue streptomycin therapy uninterruptedly and for as long as

possible. If this procedure is followed, however, relapse with drug-resistant organisms is apt to occur unless a considerable degree of healing occurs during the first few months of treatment. The observations of Miller and Bohnhoff and of Hall and Spink on *Meningococcus* and *B. abortus* are disturbing in this connection, for they suggest the possibility that continuation of streptomycin in the presence of drug-resistant organisms might actually enhance the pathogenicity of the latter.

Until more information is available, it seems advisable to choose the lesser of two evils by limiting the period of streptomycin therapy to only 6 or 8 weeks. Although this procedure might increase the chance of post-treatment relapse, it should appreciably decrease the risk of relapse with streptomycin-resistant organisms.

The development of meningitis considerably complicates the antimicrobial therapy of any infection, tuberculous or otherwise. It is by no means clear why invasion of the central nervous system by members of a particular bacterial species results in an illness which is so much less amenable to treatment than the infections produced elsewhere by the same organisms. It is unlikely that the phenomenon can be explained wholly on the basis that the various drugs fail to

penetrate the central nervous system in sufficient concentration. It seems much more reasonable to believe that the natural mechanisms by which the body destroys tubercle bacilli and certain other bacteria such as pneumococcus, are considerably less efficient within the central nervous system. It is probable that the natural mechanisms for the removal of necrotic eradication of bacteria, and repair of the lesions, the effectiveness of antimicrobial therapy is considerably impaired. Thus in tuberculous meningitis as in pneumococcus meningitis, there will be a high incidence of therapeutic failure despite the availability of powerful antimicrobial agents.

The rapid defervescence and disappearance of clinical toxicity, which followed the institution of therapy in the majority of the generalized hematogenous infections, was a most striking phenomenon. At times the appearance of the phenomenon was so rapid and abrupt as to resemble the crisis of pneumococcus pneumonia. The mechanism by which the phenomenon occurs in tuberculosis is not at all clear.

Another phenomenon worthy of mention is the rapid reduction of the size of the cardiac silhouette during the first two weeks' treatment of three patients with milary tuberculosis. It is assumed

that this phenomenon represented the resorption of a pericardial effusion or the disappearance of a considerable degree of cardiac dilatation. In no instance, however, was there any clinical evidence of the presence of either of these two complications.

From the results of the present investigation, it may be seen that in the streptomycin treatment of generalized hematogenous tuberculosis there are so many unsettled questions which pertain to the parasite or to the host, that it is impossible to outline an ideal chemotherapeutic regimen at this time. The results which have been presented were observed on a regimen of 3.0 Gm. of streptomycin daily, administered continuously for a period of three or

four months. This regimen was chosen arbitrarily in an attempt to afford the maximum therapy, presumed to be compatible with safety, over the longest period of time which would be generally practicable. It is conceivable that the high incidence of one cause of failure, the appearance of drug-resistant strains of bacilli, might be related to the length of the total period of therapy. At least it can be stated that the appearance of drug-resistance was not prevented by what is, in effect, the maximal tolerated regimen. Accordingly, an investigation of the use of a lower daily dose (one Gm.) for a period of six to eight weeks is in progress, and will be reported at a later date.

КАБ—КОЗ



EFFECTS OF SMOKING CIGARETTES ON THE HEART

The controversial question of the harmfulness of smoking in cases of heart disease was investigated by Levy and his co-workers. Observations were made on the effects of smoking regular and "denicotinized" cigarettes by 27 normal subjects and 21 cardiac patients, using as indices the cardiac output, heart rate, blood pressure and electrocardiograms. It was concluded that "except in susceptible persons, smoking causes only slight change in the circulation and does not significantly increase the work of the heart. Because of the enjoyment and emotional satisfaction afforded, patients with inactive forms of heart disease may be permitted to smoke in moderation. Cardiac conditions in which smoking should be forbidden include congestive failure, acute myocardial infarction and active rheumatic carditis."—Robert L. Levy, M.D.; James A. L. Mathers, M.D.; Alex A. Mueller, M.D., and John L. Nickerson, Ph.D., *Journal of American Medical Association*, October 18, 1947; 135:417-422, 1947.

LBL—LBL

PRESERVATION OF THE THREATENED PREGNANCY WITH PARTICULAR REFERENCE TO THE USE OF DIETHYLSTILBESTROL

By Gordon Rosenblum, M.D., and Eugene Melinkoff, M.D.

Condensed from the Western Journal of Surgery, Gynecology and Obstetrics

IN OUR experience, diethylstilbestrol has proved to be the most effective preparation in the treatment of cases of threatened and habitual abortion, and threatened premature labor. We present the results of our study of a group of 96 unselected private patients to whom diethylstilbestrol was given.

Threatened abortion was diagnosed by the appearance in early pregnancy of vaginal bleeding, with or without cramps. At the onset of symptoms the patient was ordered to bed, and was given 5 to 25 mg. of diethylstilbestrol orally at once. Thereafter the dosage was usually 5 mg. three times daily, but as long as symptoms existed, 25 mg. every hour was given. As soon as bleeding had been absent for 48 hours, the patient was allowed to get out of bed. Administration of diethylstilbestrol was continued only until about the 20th week of gestation.

Habitual abortion was defined as the existence of three or more previous spontaneous abortions. To these cases we gave 5 mg. of diethylstilbestrol three times a

day, from early pregnancy up to the 20th week. At that time each dose was increased by 5 mg. This increase was continued at weekly intervals up to the 36th week, when the medication was stopped entirely. We enforced no particular restriction of physical activity.

Threatened premature labor was defined as the presence in late pregnancy of painful uterine contractions, which were severe and frequent enough to cause us to suspect that labor would probably begin if treatment were not instituted. In these cases 25 mg. of diethylstilbestrol was given initially, and was continued at hourly intervals until contractions ceased. Then the drug was given in doses of 5 mg. three times a day up to the 36th week.

Our routine care included the administration of $\frac{1}{2}$ -1 gr. of thyroid extract daily.

Except for a rare case of nausea, we observed no ill effects from the administration to our patients of diethylstilbestrol in doses as high as 200 mg. daily. In no case was it necessary to reduce the dosage or stop the

drug; on the contrary, many patients reported a feeling of well-being and a lessening of nausea and headache after beginning the drug.

All patients taking diethylstilbestrol were advised to reduce their salt intake. Toxemia appeared in two patients, one at 6½ months and the other postpartum. The former was delivered by Caesarean section of a living infant, which survived.

Results: In 81 cases of threatened abortion, 71 (86.6%) were carried to term, as were 5 of the 10 cases of habitual abortion.

Three out of our 4 cases of threatened premature labor completed the full course of their pregnancy.

Before we began to use diethylstilbestrol, we had made a study of 94 consecutive patients whom we treated with progestogens and bed rest. Of 86 cases of threatened abortion, 56 (65.1%) were carried to term, as were 2 of 7 cases of habitual abortion. One case of threatened premature labor was studied; there was no response to treatment and she miscarried.

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CBL—HBJ



TREATMENT OF ACUTE PUERPERAL MASTITIS

We have studied 50 cases of acute puerperal mastitis at the Edinburgh Royal Infirmary. These represented an incidence of 1.4 per cent from a total of 3500 deliveries in the year 1946.

Breast feeding was continued in all cases.

Penicillin, in an average dose of 200,000U per day for 7 days, gave satisfactory results in 42 cases. We found it best to give 100,000U every twelve hours, rather than smaller doses at more frequent intervals.

Sulfathiazole was effective in 3 cases, including one which was penicillin-resistant.

The use of fomentations alone cleared up 4 cases satisfactorily. In general, however, fomentations are not advisable because they may macerate the nipple. One case did not respond to this type of therapy, and went on to abscess-formation, requiring incision.

The only local treatment which we recommend in acute puerperal mastitis is firm support in the form of a many-tailed binder with shoulder pads.—*James S. Jeffrey, M.D., F.R.C.S., Edinburgh Medical Journal, August, 54:442-446, 1947.*

CBL—HBJ

THE CONTROL OF EPILEPSY

By Anthony E. Loscalzo M.D., New York

Condensed from the Journal of American Medical Association

IN A FULL three years of study with 3-methyl-5, 5-phenylethylhydantoin, 67 cooperative patients (the major portion suffering from epilepsy of undetermined cause and a small number from epilepsy of organic origin) were treated. Grand mal seizures were reduced approximately 60% and improved emotional status was noted consistently as compared with diphenylhydantoin sodium. The total average expected incidence of grand mal seizures in the 67 patients was 2,891. The actual number of grand mal attacks experienced by these same patients taking 3-methyl-5, 5-phenylethylhydantoin and phenobarbital was 1,140.

In 22 cases, or about one third of the total, the grand mal seizures ceased completely shortly after a regimen of 3-methyl-5, 5-phenylethylhydantoin and phenobarbital was instituted. In 7 cases the seizures continued in the same ratio as before the new drug was prescribed. In 6 cases the number of grand mal seizures increased, in spite of adequate dosage and a reasonable trial period. In the remaining 32 cases the frequency of grand mal seizures was reduced from 10% to

90%. Of further importance was the fact that the severity of the seizures was definitely lessened.

Studies of chronic toxicity in animals have shown the drug to be well tolerated. In this study in 4 cases (6%) there developed gingival hypertrophy; in 3 cases (4.5%) skin rash and in 10 cases (15%) slight drowsiness. Hypertrophy of the gums was minimal in all cases, and the drug was continued. In some cases previous gingival hypertrophy caused by diphenylhydantoin sodium actually receded and disappeared with 3-methyl-5, 5-phenylethylhydantoin therapy. In the 3 cases of skin rash, the rash was generalized and of a morbilliform type. Only 1 patient was unable to take the drug because of a rash. Other toxic symptoms of hydantoins, such as ataxia, nausea, vomiting, dizziness and diplopia, were not encountered in this series. Ten patients (15%) complained of drowsiness.

Phenobarbital in small doses increased the anticonvulsant action of this drug and in addition controlled the anxiety and other disturbing symptoms from which many epileptic patients suffer. Depending on the severity and

frequency of the attacks, 1 to 6 tablets of 3-methyl-5, 5-phenylethylhydantoin and 0.02 to 0.13 Gm. ($\frac{1}{3}$ to 2 gr.) of phenobarbital were taken by each patient daily; the average dose being 4 tablets, 0.4 Gm. (6 gr.) of 3-methyl-5, 5-phenylethylhydantoin

and 0.088 Gm. ($\frac{1}{3}$ gr.) of phenobarbital daily.

This study supports the preliminary observations that 3-methyl-5, 5-phenylethylhydantoin is superior to other hydantoins in present use in the treatment of grand mal seizures.

JPS—CHC



SERIOUS DOG SHORTAGE IN MEDICAL RESEARCH HIGHLIGHTED BY ATTEMPTS TO USE MORE RATS

A critical nationwide shortage of laboratory animals, particularly dogs, for medical research has been highlighted by an announcement from the University of Denver that two scientists have developed techniques for wider use of rats in experiments and instruction.

Doctors Fred D'Amour and Frank R. Blood have developed ingenious methods and miniature instruments which enable rats to be used in some research and instruction formerly requiring dogs and cats because of their larger size. Their techniques are reported in a new manual to be published by the University of Chicago Press.

Since rats cannot replace dogs for many experiments, however, there looms an increasingly urgent need for more experimental dogs in the great medical centers of New York, Boston, Baltimore, Philadelphia, Chicago, San Francisco, and Los Angeles.

The shortage of dogs is attributed to several factors in addition to the generally quickened pace of medical research and the large increase in the number of medical and scientific students.

Among these is the fact that the dog population of the nation is not increasing. It apparently is being materially reduced by the programs of the antivivisectionist cult. In one large city more than 30,000 dogs are killed each year by antivivisectionist societies, according to statistics released by them.

The increasing cost of specially bred laboratory dogs is placing a strain on medical research budgets. It now is estimated that it costs at least \$25 to raise a dog from a pup to the point where he can perform his valuable part in medical research.—*Release, National Society for Medical Research.*

TWO CASES OF PEPTIC ULCER IN CHILDREN

By Martti Hirvonen

Condensed from Annals Medicinæ Internæ Fenniae

PEPTIC ulcer is generally rare with children. It can however appear even in the newborn. Several authors have also noted that the anamnesis of patients suffering from peptic ulcer often begins during childhood. Taking into consideration the rareness of peptic ulcer in children and the circumstance that to my knowledge no cases of this disease in children were previously published in Finland, I have thought it opportune to publish a case of duodenal ulcer recently established by me in a patient of 5. I shortly enumerate below the main points of the patient's record:

The patient is aged five, son of a major. Beginning with the age of 3 years and 8 months he began to complain of stomach ache after eating and at night; the pains were periodical, with lighter and more difficult periods alternating. When the patient came into hospital an x-ray examination established an unusually dilated stomach, whose mucous membrane had a usual relief; no niches nor shadow defects in the stomach. Bulbus duodeni directed backwards, filling badly, a persistent shadowy spot just by the bulbus. After a three weeks' treatment by diet and rest, during which the patient's pains ceased altogether and his weight increased by $\frac{1}{2}$ kg., a new X-ray examination was undertaken. It was then possible to establish that the stomach had decreased in size

and was now in a transverse position, whereas it had been in an upright position before. The bulbus filled up noticeably better now and on the side of the minor curvature there was now a low niche in the vicinity of the pylorus. In the x-ray picture taken a month later the niche had disappeared nearly completely and the bulbus filled very well.

As second instance I have the opportunity to publish a case of Peptic Ulcer treated in the Clinic for Children of the University of Helsinki in 1927, 1928 and 1929. The main points of the patient's record were as follows:

The patient is the son of a workman, aged 3 years and 4 months. At the end of the third year patient had from time to time complained of stomach pains in the epigastrium. When 3 years and 4 months old he was suddenly taken ill with fits of vomiting, of which there were several during the same day. It was ascertained at the examination performed then that patient seemed to be very ill. On the following day at the hospital patient threw up a bloody vomit several times, gradually the general condition improved and the sensorium became clear. After a week the patient was able to return home as convalescent. This time the diagnosis was: Intoxicatio.

Upon his return home patient suffered from diarrhea on several days in the course of a month. After that during the year from time to time pains in the stomach and sometimes vomiting. Towards the end of next summer the illness grew worse, the vomiting was ample and became a

daily occurrence, so that the patient is again taken into the Clinic for Children in August as in the previous year.

It was then ascertained that patient preferred to lie on his side, with hands and feet drawn up. Lungs 0, Heart 0, Pulse weak, 120/min. One week patient throws up dark, bloody vomit. After a treatment of three weeks and a half patient could again be sent home as convalescent. 3 days before he was sent home a blood picture was taken. The hemoglobin percentage was 42 and red cells 2,756,000.

During the whole of the following winter patient was extremely well and only in next August began again complaining of stomach ache, which, after some days, was accompanied by bloody vomiting so that he was again taken into the Clinic for Children.

Now it was ascertained that the pa-

tient was seriously ill. The expression of the face is anguished, patient fidgets restlessly and asks for water. Temp. 39.0°. Mucous membranes somewhat anemic. Sometimes patient answered questions put to him, sometimes he lost consciousness. Lungs 0, Heart 0, pulse quickened, rather weak, 144/min. The vomiting of the color of coffee dregs continued at the hospital and caused, after four days, *exitus letalis*. The diagnosis was *ulcus duodeni*.

As it seems to me probable that many an unclear case of abdominal diseases in children can be due to peptic ulcer, it would be well to effect X-ray examinations in such cases to a greater extent than before.

138 E.O.E.



RATS IN CONFLICT

Experiments reported by Drs. Norman R. F. Maier and John U. Longhurst, of the University of Michigan show that rats break down when they are forced by an airblast to jump in a direction they have learned is wrong. The air makes a "Shishsh" noise annoying to humans and very irritating to rats.

In his experiments, Dr. Maier used 81 rats from 18 different litters. One group of 37 animals were first trained to distinguish between a black circle and a white circle and to jump to the black circle to obtain a reward.

Later these same rats were shown only one of the cards, but were forced by a blast of air to jump, regardless of whether the card shown had the black circle or the white one. When the "wrong" circle was shown, the rat did not want to jump but had to. This formed the "conflict."

Another control group went through the same test of having to jump to a card containing either black or white circle, but these animals had had no previous training to teach them that one circle was right and the other wrong. Thus having to jump to the white circle instead of a black one did not disturb them—there was for them no conflict.—*Science News Letter*, January 10, 53:22, 1947.

THE MASSIVE INTRAVENOUS PENICILLIN THERAPY OF EARLY SYPHILIS

By E. E. Peters, M.D., and R. L. Barton, M.D., Chicago, Ill.

Condensed from the American Journal of Syphilis and Venereal Disease

TWO HUNDRED AND SEVENTY-FIVE patients with dark-field positive primary or secondary syphilis were treated with sodium penicillin by the continuous intravenous drip technic in amounts varying from 10 million to 25 million units in a period of 24 hours. High levels of penicillin in the blood were rapidly reached and easily maintained. Significant quantities of penicillin were found in the cerebrospinal fluid in the majority of patients. The majority of patients tolerated well 10 million to 25 million units of penicillin given intravenously over a period of 24 hours. All reactions observed were transient and cleared spontaneously.

This type of therapy however, has proved grossly inadequate for the treatment of early syphilis.

At the end of a twelve-month period of observation, the cumulative percentages of failures were 67.8, 66.2, 20.5, and 35.2 for patients receiving 10, 15, 20, and 25 million units respectively. The difference between the cumulative percentages of failures at one year and 100% represent the cumulative percentages of patients attaining seronegativity, since it

was the policy to re-treat seropositive patients at that time.

The number of patients treated with 15 and 20 million units is too small to be statistically valid. Although the cumulative per cent failure rate was cut approximately in half when the dose of penicillin increased from 10 to 25 million units, the more favorable results reported by others, with treatment schemes employing considerably smaller amounts of penicillin administered over longer periods of time, indicate the superiority of their time-dose relationships.

Relapses tended to occur early. Seventy-eight per cent of the observed failures, 85 of 109, occurred within a period of five months after treatment. The earliest relapses occurred in the second month and the latest in the fourteenth month of observation. Sixty-four per cent of the failures were diagnosed on clinical grounds, and 36% on serologic grounds.

As might have been anticipated, results were better in seronegative primary syphilis than in either seropositive primary or secondary syphilis. Recurrent syphilis showed the greatest tend-

ency to relapse. Detailed analysis of the patients in the two larger groups showed that after treatment with 10 million units of penicillin the cumulative percentage of failure after 12 months of observation for seronegative primary syphilis was 40.2; for seropositive primary syphilis 51.9; for secondary syphilis, 77.4; and for recurrent primary or secondary syphilis (six cases) 100%. The corresponding percentages for patients receiving 25 million units of penicillin were: seronegative primary syphilis, 21.3 seropositive primary syphilis, 43.9; and secondary syphilis, 42.3%, while of six patients diagnosed as having recurrent syphilis and followed for eight months, none failed. The implications of the latter are, at the moment, purely speculative because of the small numbers of patients in each category.

No detailed information could be obtained as to the clinical course after treatment. The majority of patients had repeated dark-field examinations performed shortly after the termination of treatment and in no instance was *T. pallidum* found. Most of the lesions healed as rapidly as with other forms of treatment; the chancres being epithelialized and the secondary manifestations well involuted by the end of one week. A small number of large chancres failed to heal completely and were

again dark-field positive within five to six weeks.

The importance of the duration of treatment in the management of syphilis is thus apparent.

REACTIONS. Although the reactions to treatment in this series were frequent, they were mild in general. Two patients manifested moderately severe reactions, but treatment was not discontinued. Contrary to reports in the literature, the almost universal occurrence of moderate to severe discomfort at the sites of injection of the "Pitkin menstruum" containing heparin necessitated the routine use of pantopon.

Temperature elevations of some degree occurred in all but one patient. Twenty-three patients developed Grade I fever; 79, Grade II fever; and 172, Grade III fever. (Grade I = rise up to 1°F. above the three-day pretreatment average; Grade II = rise up to 2°F. above the three-day pretreatment average; Grade III = any elevation above Grade II.) Twelve per cent of the patients manifesting Grade III fever had preceding chills of moderate severity. Whether the febrile responses were true Herxheimer phenomena or due to the injection of large amounts of foreign substances is difficult, if not impossible, of differentiation on clinical or laboratory grounds. In 20 patients having chills and

Grade III fever, however, there was observed an intensification of the cutaneous syphilides of sufficient degree to merit recording.

Twenty-eight patients developed moderately intense gastrointestinal disturbances alone or in combination with abdominal pain, nausea, vomiting, and diarrhea. There were sixteen instances of phlebothrombosis usually discovered on the first outpatient visit.

Eight patients developed azotemia with blood urea nitrogen above 20 mg. per cent, the blood nonprotein nitrogen above 40 mg. per cent, and reduced renal function with urea clearance below 40%. All reactions were transient and had associated either alone or in various combinations a normal urine, albuminuria, hematuria and granular casts.

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DMP—RDD



SCHOLAR IN MEDICAL SCIENCE PROGRAM ANNOUNCED BY MARKLE FOUNDATION

An opportunity to start a career in academic medicine is offered to young scientists with the necessary training to hold a regular faculty appointment and to conduct original research through a new program of "post-fellowship" grants, announced by the John and Mary R. Markle Foundation. The purpose of the program, according to John M. Russell, Executive Directors of the Foundation, is to attract much-needed talent to academic medicine by giving promising young scientists academic security and financial assistance for a period up to five years. The program will be conducted in cooperation with accredited medical schools in the United States and Canada. Grants of \$25,000, payable to the co-operating school at the rate of \$5,000 annually for a five-year period toward the support of each successful candidate or his research or both, will be available beginning with the academic year 1948-49. If the plan proves successful, the Foundation will appropriate a total of \$1,250,000 to the schools by 1953.

Candidates will be recommended by medical schools and will be limited to young men and women with a particularly strong interest in research and teaching in any of the clinical or pre-clinical sciences or in the sciences basic to medicine. They will have had training in some special field or combination of fields to qualify them to receive a regular faculty appointment and to conduct original research. The final choice will be made, on the basis of the schools' recommendations, by regional committees appointed by the Foundation.—*Release, John & Mary Markle Foundation, New York, N. Y.*

RUTIN: A THERAPY FOR THE HEMORRHAGIC COMPLICATIONS OF HYPERTENSION

By John Q. Griffith, Jr.

Condensed from the Proceedings of the Institute of Medicine of Chicago

RUTIN is a flavonal glucoside, at the present time derived commercially from buckwheat. In experimental animals it has the effect of opposing abnormally increased permeability and fragility of the capillaries.

In our own clinical studies with rutin we have observed its effect upon 1,600 white hypertensive subjects. On first examination of this group, 19% showed increased capillary fragility, and an additional 11% showed increased capillary permeability, meaning they had increased cutaneous lymphatic flow without evidence of renal or pituitary disease. There was no difference in age, sex, or level of hypertension in these subjects as compared to the remaining 70%. However, a history of apoplexy occurring within 16 months of the period of study was obtained in 10% of those patients showing a fault of the capillary wall, as compared to an incidence of 1.9% in the remainder. A history of retinal hemorrhage confirmed by ophthalmoscopic examination was obtained in 9% of patients with a fault of the capil-

lary wall and in 2% of the remainder.

In all, 189 subjects with capillary wall fault have been followed with repeated studies for periods up to 48 months, averaging 16 months. Initial rutin dosage was 60 mg. per day. Tests were repeated every 6 weeks as long as they were abnormal, and every 3 months when they were normal. Rutin dosage was increased each time a repeated test was abnormal, usually by 20 mg. more per day, and dose was maintained when tests were normal. At no time was any toxicity noted which could be ascribed to the rutin. A daily dose of 60 mg. proved adequate for 72% of all subjects and 80 mg. or less for 87% of all subjects, but the remainder required more, up to 400 mg. per day.

Capillary tests became normal and remained consistently so in 75% of the series, but in 25% they were either consistently or intermittently abnormal. This group of 25% comprised most of the subjects who cooperated poorly, although there was a

small group of 6% where therapy was followed conscientiously and apparently failed.

Only 53% complained of any symptoms initially. Following therapy, symptoms seemed definitely improved in 30% as evidenced by increased ability to work, etc., probably improved in 13% as stated by patient, and unchanged in 10%. The possibility of a psychic factor complicating this result, however, cannot be denied.

Blood pressure remained unchanged in 49% of subjects, was somewhat higher in 7%, lower in 37%, while in the remainder the result was uncertain.

During the 16-month period following study, apoplexy occurred in 1.5% of the treated group with normal tests and in 9% of those where one or both tests remained increased or who lapsed treatment. If anything has been accomplished by treatment, it would seem to be that the patient has been moved from a group with a 9-10% incidence of apoplexy to one with 1.5-1.9% incidence.

During the 16-month period following study, retinal hemorrhage occurred in the same number of patients as those who suf-

fered apoplexy (but in different individuals), and with the same division.

It has been found that thiocyanate, given therapeutically to patients who have initially shown no capillary fault, will be followed by an increased capillary fragility or increased capillary permeability in about 8% of subjects. It has been our practice, therefore, not to give thiocyanate to a patient with either increased capillary fragility or permeability until such fault has been corrected by therapy, and at least 2 normal tests have been secured over a period of at least 3 months. Thereafter, during the entire period of thiocyanate therapy, that test which was originally abnormal is repeated every 3 months, and, if it becomes abnormal, rutin dosage is either increased, or thiocyanate stopped, or both.

In the majority of cases, rutin does not lower blood pressure. In certain cases, as an adjuvant to thiocyanate therapy, it may enable thiocyanate to be used, with a resulting real lowering of pressure, in patients with capillary fault in whom thiocyanate alone might conceivably be dangerous.

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CLB—HBJ



I prefer a tongue-tied knowledge to ignorant loquacity.—*Cicero*

☞ Only 20% require surgery.

SURGICAL MANAGEMENT OF GASTRIC AND DUODENAL ULCERS

By O. Theron Clogett, M.D.

Condensed from the Journal of the Medical Association of the State of Alabama

AN EVALUATION of vagotomy in the treatment of ulcers of the stomach and duodenum is pertinent at this time in view of the favor with which it is now regarded. I should like to establish the point that gastric ulcer and duodenal ulcer, while similar in some respects, are very different diseases and likewise their treatment.

DUODENAL ULCER. This is a serious disease because it is so chronic and disabling and its complications so dangerous. I believe that duodenal ulcer is a medical disease and that only about 20% of the patients with duodenal ulcer require surgical treatment.

Surgical procedures are necessary for the treatment of complications of duodenal ulcer. These are: (1) perforation, (2) hemorrhage, (3) obstruction, and (4) ulcer intractable to medical management. At present we do not have a satisfactory operation for the treatment of duodenal ulcer itself.

Acute perforation of a duodenal ulcer constitutes a surgical emergency. The surgical treatment should be simple closure of

the perforation. Two or 3 sutures will usually suffice for closure. Omentum should be sutured down over the site of the closure for additional protection. If there has been considerable leakage and soiling of the peritoneal cavity, I prefer to insert some drainage tubes in the subphrenic space and down to Morrison's pouch. If there is evidence of obstruction, it may be necessary to perform gastro-enterostomy at the time the perforation is closed.

In our experience at the Mayo Clinic, only about 20% of the patients who have had acute perforation required subsequent surgical treatment of the ulcer.

Fatal hemorrhage from an ulcer in a patient less than 40 years of age is very rare. I feel that if a patient of any age has more than 2 hemorrhages, surgical treatment is required. If possible, operation should be performed after the patient has recovered to a large extent from the hemorrhage. The treatment of choice is subtotal gastrectomy. The resection should include $\frac{3}{8}$ to $\frac{2}{3}$ of the stomach. It is obligatory that the pyloric ring

be included in the resection.

The ulcer itself does not need to be removed unless it is bleeding actively at the time of operation. The ulcer will heal promptly once the gastric contents are diverted from it.

I do not believe it matters a great deal what type of anastomosis of the stomach to the jejunum is used. I prefer the Hofmeister-Polyna type. I do not hesitate to make the anastomosis anterior to the colon if the mesocolon is short and fat or if the arcades are not large enough to permit a posterior anastomosis.

Pain from a duodenal ulcer which is intractable to medical management may be intolerable and surgical intervention may be justified. The treatment of choice is subtotal gastrectomy. It is unwise to dig these ulcers out of the pancreas. The ulcers should be left in place.

Frankly, I do not know as yet where vagotomy fits into our armamentarium for the treatment of ulcer. We must admit that our older methods of treatment are not entirely satisfactory. Speaking for myself, I am going to be conservative. There have been untoward effects of vagotomy, such as gastric retention, diarrhea, recurrent ulcers, etc.

It is such an easy and safe technical procedure as far as the

operation itself is concerned, that I am afraid that surgeons who have not had the proper training or experience will be tempted to try this procedure perhaps in patients poorly selected for the operation.

Whether vagotomy should be performed through the thorax or abdomen is debatable. The thoracic route is undoubtedly easier technically and probably both nerves and their branches can be severed with greater facility. The abdominal approach permits an exploration of the lesion which I think preferable.

I think the best indication for vagotomy is the occasional gastrojejunal ulcer that has developed after an adequate subtotal gastrectomy.

GASTRIC ULCER. Gastric ulcer is primarily a surgical disease which may or may not become malignant. Because this is true and because the risk of resection is so low, I believe every patient who has an ulcerating lesion of the stomach should have an early surgical removal. The results of gastric resection for gastric ulcer are among the best in all surgery. The operation of choice is resection of the ulcer and the portion of the stomach distal to it, including the pylorus. I prefer the Schoemaker modification of the Billroth I operation. An oblique closure of the lesser curvature

portion of the end of the stomach is carried out and the greater curvature portion of the end of the stomach is anastomosed to the end of the duodenum. It is possible to resect as much as $\frac{3}{4}$ of the stomach by this technic.

Vagotomy is definitely contraindicated in the treatment of gastric ulcer. The results of gastrectomy are excellent. The danger of the lesion being malignant is too great to warrant vagotomy.

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TAJ—CBH

DRUGS FOR VETERANS

Pharmacists in 42 states and in the District of Columbia are cooperating with Veterans Administration to furnish drugs prescribed by local physicians for veterans with service-connected disabilities, Dr. Paul R. Hawley, chief of VA's medical service, announced recently.

To be eligible for the service, veterans must receive prescriptions from private physicians operating under VA's hometown medical care program or from VA-designated or fee basis physicians. In either case, veterans must be receiving medical treatment for a service-incurred illness or disability.

This service is the result of contracts made by VA with state pharmaceutical associations. Fees charged by pharmacies operating under the plan are approximately equivalent to average fees for prescriptions charged the general public.

In addition to drugs, certain specified "medical requisites," such as insulin syringes and needles, atomizers, nebulizers, hot water bottles, fountain syringes, ice bags and feeding tubes, are available under the plan. These items are to be prescribed only in cases of emergency.—*Press Release, Veterans Administration, October 18, 1946.*

TREATMENT OF AURICULAR FIBRILLATION WITH ATABRINE

Atabrine may be successfully used in place of quinidine for restoring normal sinus rhythm in cases of auricular fibrillation. It appears to be relatively nontoxic and may have an advantage over quinidine by its more rapid effect when given intramuscularly.—*M. M. Gerler and S. B. Yohalem, The Canadian Medical Association Journal, September, 57:247-253, 1947.*

L.B.L.

COMPARATIVE STUDY ON THE USE OF THE PURIFIED DIGITALIS GLYCOSIDES, DIGOXIN, DIGITOXIN, AND LANATOSIDE C, FOR THE MANAGEMENT OF AMBULATORY PATIENTS WITH CONGESTIVE HEART FAILURE

By Robert C. Batterman, M.D., and Arthur C. DeGraff, M.D., New York, N. Y.

Condensed from the American Heart Journal

CONSIDERABLE attention has been focused upon the use of purified digitalis glycosides and there is no question that they offer certain advantages over the digitalis leaf. It is imperative, however, that each glycoside should undergo extensive clinical trial in order to establish its relative potency and to determine satisfactory methods of dosage. This report deals with a comparative study of the use of digoxin, digitoxin, and lanatoside C, in the treatment of the ambulatory patient.

METHOD. The study was conducted on 74 ambulatory patients, all of whom required the daily administration of a digitalis preparation but without diuretic therapy. Patients with recent myocardial infarction or other medical conditions which may have either altered the cardiac status or interfered with proper evaluation of therapy were excluded.

With few exceptions, the patients had been observed for months or years on a standard digitalis leaf preparation so that

their digitalis requirements were well known. The initial dose level of the glycoside substituted for the digitalis leaf was arbitrarily chosen as any multiple of the smallest tablet furnished by the pharmaceutical concern. The patient was directed to take the entire amount as an undivided dose, preferably at the same time each day for it became evident that this was very important for proper maintenance. A division of the dose over a 12- to 16-hour period would have accentuated the dissipation factor and interfered with proper evaluation of the dose level. Visits to the clinic were made at average intervals of three weeks and the minimum period of observation on each dose level was eight weeks. An attempt was made to determine the minimal dose for either satisfactory maintenance or development of signs and symptoms of toxicity by either decreasing or increasing the daily dose by small increments.

RESULT. It was possible to evaluate digoxin for a total of 119 trials in 40 patients; digitoxin

for 103 trials in 32 patients, and lanatoside C for 133 trials in 46 patients.

STUDIES WITH DIGOXIN. Considerable individual variation was found. The maintenance dose ranged between 0.25 and 1.5 mg., the dose roughly paralleling the severity of the underlying heart disease. Seventy per cent of the patients were maintained with a dose of 0.75 or less. The toxic dose for daily administration ranged between 0.5 and 2.0 mg. and approximately 60% of the patients had toxicity with an undivided dose of 1.0 mg. or above. The dose of choice when initiating maintenance with digoxin, if no knowledge of previous digitalis leaf dosage is available, is 0.5 mg. This dose will be effective in the greatest number of patients with the least possibility of toxicity. If the patient has been previously receiving digitalis leaf, digoxin could be substituted in doses of 0.5 mg. for each 0.1 Gm. of digitalis leaf. The rapid dissipation of digoxin interfered with proper maintenance if the daily dose was divided.

STUDIES WITH DIGITOXIN. Fifty per cent of the patients were maintained with a daily dose of 0.1 mg. or less. The toxic daily dose was 0.1 mg. or more but was usually above 0.2 mg. As in the case of the other

glycosides, considerable individual variation was noted. The maintenance dose ranged from 0.05 to 0.3 mg. The dose which appears to be the best for selection when the patient requires maintenance for the first time is 0.1 mg. The daily administration of 0.2 mg. resulted in toxicity in about one-third of the patients. With the administration of 0.1 mg. every other day (0.05 mg. per day), adequate maintenance was obtained in one-fourth of the patients.

STUDIES WITH LANATOSIDE C. The maintenance dose ranged from 0.5 to 3.0 mg. Approximately 62% of the patients were maintained with a daily undivided dose of 1.0 mg. Toxic effects were noted with 1.0 mg. or more and were usually encountered with a dose greater than 1.5 mg. Again there were considerable individual variations. There is an equal chance of either producing maintenance or toxicity with this dose. The most satisfactory dose for initiating maintenance is 1.0 mg. daily. It was found to be definitely more difficult to establish a maintenance dose with lanatoside C than with the other glycosides.

THERAPEUTIC RATIO. The therapeutic ratios for the three glycosides were identical. When the minimal maintenance dose was double, toxicity occurred

with digoxin in 63.6% of the patients, with digitoxin in 65.4%, and with lanatoside C in 62.9%.

TOXIC MANIFESTATIONS. With daily doses that produced toxicity the signs and symptoms were the same for all three glycosides as far as type and incidence were concerned. They differed from those noted with digitalis leaf in two respects. It was unusual for diarrhea to be noted as a toxic symptom for any of the glycosides. Visual disturbances were just as common but did not include yellow or green vision. Although the impression was gained that gastro-intestinal irritation was less with the use of the glycosides, it is impossible for us to state with certainty that this is significant. The glycosides differed, however, in the duration of toxicity. Whereas it was unusual for the signs and symptoms of toxicity to persist longer than 48 hours for either digoxin or lanatoside C, in many instances the toxicity following digitoxin persisted for 72 to 96 hours or even a week. Furthermore, in adjusting the dose of the glycoside following the occurrence of toxicity, it was absolutely imperative to stop the administration of digitoxin for several days. In the case of lanatoside C or digoxin, the patient could easily continue on a smaller dose or even the same total dose, but in divided

amounts, and yet have all signs and symptoms of toxicity subside very promptly.

DISCUSSION. The most important advantage of the introduction of purified digitalis glycosides is their uniformity from lot to lot. With the exception of an occasional patient who cannot tolerate digitalis leaf because of local gastro-intestinal irritation and the psychologic factor of prescribing digitalis, the use of the purified glycosides will not result in a more efficient or safer digitalization. The glycosides may vary in terms of latency of action, speed of dissipation, and degree of gastro-intestinal absorption, but they appear to be identical as far as their action of improving the efficiency of heart muscle is concerned. Furthermore, the toxic manifestations, although differing in duration, appear to be generally the same for the purified glycosides and digitalis leaf.

In comparing any particular glycoside with any other, the same relative potencies held for both maintenance and toxic doses. However, in the case of lanatoside C, the therapeutic range in some instances appeared to be exceedingly small. This is probably due to either rapidity of dissipation of the drug or to its destruction in the gastro-intestinal tract or a combination of both of these

factors. It definitely impairs the usefulness of lanatoside C for oral use in maintenance. The usefulness of digitoxin, while satisfactory for maintenance, is offset by its slow rate of dissipation and prolonged toxicity. An increase of 100% in dosage of

digitoxin is relatively more dangerous than the same increase of digoxin or lanatoside C. For these reasons, digoxin appears to be the glycoside of choice for the daily management of the patient with congestive heart failure.

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HOSPITAL VETS TRAIN FOR FUTURE CAREERS

Manual arts and educational therapy programs in Veterans Administration hospitals, designed primarily to take patients' minds off their ailments and speed their recovery, have started a number of veterans toward their post-hospital careers.

One veteran, in a New England VA hospital since December, 1940, took part in the manual arts therapy program by learning print shop procedure. Recently discharged from the hospital, he found employment in a commercial printing establishment.

Another patient in an eastern VA hospital prepared for a Civil Service examination under the supervision of the hospital's educational therapy staff. He took the examination after he left the hospital, placed second, and was awarded a well-paying position.

A former photographer, paralyzed from the waist down as the result of shrapnel wounds, studied photographic retouching while a patient in a VA hospital. His pre-war employer, the art director of a large New York advertising agency, sent him some negatives to retouch and was so pleased with the workmanship that he promptly offered the veteran a position as retoucher.

A patient in a midwestern VA hospital, undergoing shock therapy treatment, took a course in drafting under the direction of the educational therapy staff. Released from the hospital, he has been given the opportunity to continue his training as a Public Law 16 on-the-job trainee at a U. S. arsenal.—*Veterans Administration Release.*



¶ A man, always studying one subject, will view the general affairs of the world through the colored prism of his own atmosphere.—*Disraeli*

PRESENT CONCEPTS CONCERNING THE CARE OF THE BURNED PATIENT

By William E. Abbott, M.D., Detroit, Mich., and John Winslow Hirshfeld, M.D., Ithaca, N. Y.

Condensed from the American Journal of Surgery

SIGNIFICANT changes have occurred in the treatment of thermal injuries during the past 5 years.

Early therapy consists of relief of pain and the treatment of shock.

In adults the relief of pain is best accomplished by the intravenous administration of $\frac{1}{6}$ or $\frac{1}{8}$ gr. of morphine and repeating every $\frac{1}{2}$ hour if necessary. The intravenous administration of 1 Gm. of novocain crystals in 500 cc. to 1000 cc. of isotonic salt solution has been employed for the relief of pain and while there has been little experience with this method it may offer a suitable way of relieving discomfort while treating shock.

In the past few years it has been noted clinically and experimentally that the use of a sodium containing electrolyte solution and blood is as effective as plasma and sometimes preferable in the treatment of shock.

Hartman's solution (Ringer-lactate) can be used or one containing 6 Gm. of sodium chloride and $2\frac{1}{2}$ Gm. of sodium bicarbonate per liter. In order to make these 2 solutions hypotonic, 500

cc. of water should be added to 1000 cc. of an isotonic solution. This mixture may be given orally or intravenously depending upon the patient's condition.

The amounts of solutions to be administered should be governed by the patient's size, the severity of injury, and his response to treatment. The urinary output provides a valuable guide as to the state of the patient and the effectiveness of therapy. The amount of whole blood employed should vary somewhat depending on the age of the patient, the extent and depth of the burn, and the patient's cardiovascular state.

The immediate local wound therapy consists of a simple, non-traumatizing irrigation of the burned area with normal saline. Following this a protein extract advocated by Chase or the ointment advocated by Howes and Ackermann is applied to the wound by the open or closed method. In the open method the protein extract is applied to the burned area and the patient is placed on a Bradford frame under a heat tent. If the eschar cracks, more ointment can be applied. In the closed method

the ointment is applied and covered by a fine mesh gauze and the region wrapped with a sterile dressing. If infection occurs, the eschar which is produced liquifies. The wound can be frequently inspected when either the open or closed method is employed without fear of introducing further infection.

The systemic administration of penicillin is frequently advantageous for combating infection.

The nutritional and metabolic problems are taken care of by the following procedure:

Food is usually omitted (except in those patients with mild burns) for 24 to 48 hours. A diet containing 1.6 times the patient's basal caloric requirements is then given. Twenty per cent of this diet should consist of a nutritionally adequate protein. After 5 to 15 days the diet is gradually increased so that it will provide adult patients with 3,000 calories and from 120 to 300 Gm. of protein daily. Patients with moderate or severe burns should be given approximately 10 times the daily requirements of the water-soluble vitamins and an adequate amount of vitamins A and D for at least 2 weeks. Since water retention occurs, especially between the 2nd and 14th day following a burn, and leads to hemodilution, this is best corrected by restricting the total daily fluid intake to

2,000 to 4,000 cc. and administering a concentrated sterile solution of albumin or plasma intravenously and repeating if necessary. The administration of 250 cc. of a hypertonic electrolyte solution (2 to 5%) can be given between the 3rd and 12th days. During the convalescent period whole blood should be given to prevent anemia and hypoproteinemia. If the hemoglobin is over 16 Gm. per 100 cc. plasma or albumin may be employed.

Since the successful care of such patients depends upon early healing of wounds, the removal of sloughing tissue and the grafting of skin should be accomplished at the earliest possible date. Many of the metabolic changes can be avoided or the duration of these alterations shortened if grafting is carried out promptly. The hazard of infection is minimized when the unhealed areas are reduced in size. The removal of dead tissue by the application of pyruvic acid paste as advocated by Connor and Harvey or Howes and Ackermann should contribute greatly in reducing the time required for a seriously burned patient to recover and thus minimize infection, contractures, and metabolic changes.

If adequate therapy is given as soon as possible, the mortality and morbidity rates show continued improvement.

METHYLTHIOURACIL IN THE TREATMENT OF THYROTOXICOSIS

By Arne Barfred, M.D., Denmark

Condensed from the American Journal of the Medical Sciences

THE purpose of this paper is to summarize the results achieved in using 4-methyl-2-thiouracil in the treatment of 61 cases of thyrotoxicosis and to report the results of maintenance therapy with the same drug.

Methylthiouracil is a Danish contribution to the search for a synthetic non-toxic drug. The reason methylthiouracil has received preference over propylthiouracil is not the greater potency of methylthiouracil but the fact that its manufacture is easier and less expensive.

RESULTS. In the 61 patients with thyrotoxicosis so treated, methylthiouracil has been proved a potent antithyroid drug, but it causes reactions similar to those following thiouracil.

In 18 iodine-resistant cases of thyrotoxicosis treated with methylthiouracil, the basal metabolism rate fell much more slowly than is ordinarily the case.

Increasing the dosage of methylthiouracil beyond a certain high level is of no value.

To 18 patients large doses of methylthiouracil were given. The average dose was 1.2 Gm. daily and the drug had to be discontinued in 8 cases (44%) and caused

reactions in 14 patients (78%). A smaller average dose of 0.57 Gm. was given to 43 patients and in these patients the drug had to be discontinued in 5 cases (12%) and caused reactions in 20 cases (47%). In this group of patients there occurred a case of agranulocytosis which recovered.

The largest single dose recommended is 0.4 Gm. a day, and even if this does not give any results for the first 7 or 8 weeks it is justifiable to wait 2 or 3 weeks more for a fall in basal metabolism rate.

Of 61 patients with thyrotoxicosis it was possible to carry the treatment through in 44 patients and they were fully capable of work in an average of 1.2 months after therapy was started.

Sustained remission with an average observation period of $7\frac{1}{2}$ months occurred in 16 patients (26.2%) after a treatment of approximately 5 months' duration.

The sustained remissions occurred most frequently in cases with a small to moderate-sized goiter, in the young or middle-aged groups, especially in men, and in cases where the disease had not been of long standing. The complications and the

severity seemed to have no significant influence on the ultimate result of therapy.

REACTIONS TO METHYLTHIOURACIL. In our cases there is a high incidence of small but recurrent reactions. The reason for this lies not alone in the dosage used, because even in the small dosage group the incidence of reactions is high. The only case of agranulocytosis occurred in the small dosage group.

One of the important findings was a positive urobilin test in the urine (the urine being diluted 10 times before the test) which often accompanied other signs of intoxication. When following these patients weekly they were always found to have a negative urobilin test until the signs of intoxication developed.

Before radioactive iodine can come into common use, antithyroid drugs are a valuable form of therapy and the goal must be to reduce the dosage of the antithyroid substance as far as possible without diminishing its effectiveness and thus avoid reactions.

Not only is it important to choose the correct minimal, initial dose, which we believe should not exceed 0.4 Gm. a day, but it is also important to select the patients carefully.

From the standpoint of indications, antithyroid drugs have an

important role in the treatment of cases which are: (1) too great a surgical risk or (2) in which operation is refused, or (3) which have had a relapse after a subtotal thyroidectomy. Unfortunately, many elderly patients belong to these 3 groups and as it has been shown, the very best results with methylthiouracil have not been reached in the elderly, as these patients do not have a sustained remission, but must continue on a maintenance dose. Another indication is (4) preoperative treatment. Methylthiouracil, together with iodine for 10 days prior to operation seems to lower the risk of a postoperative thyrotoxic crisis. A final (5) indication is constituted by those cases in whom one can expect "cure" from the treatment. The percentage of "cures" differs greatly: reports range from 20 to 82%, the mean being 54%.

Finally it is important to stress cases in which antithyroid drugs are contraindicated: (1) large intrathoracic goiter; (2) large adenomatous or diffuse goiter which is rapidly increasing; (3) in non-cooperative patients, where the control is difficult or even impossible; (4) thyrotoxicosis which is due to acromegaly; (5) thyrotoxicosis in pregnancy is an unsettled matter.

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THE ANTIDIURETIC EFFECT OF MORPHINE AND DEMEROL IN CONGESTIVE HEART FAILURE

By M. Irene Ferrer, M.D., and Leon Sokoloff, M.D., New York, New York

Condensed from the American Journal of Medical Sciences

IN man the antidiuretic effect of morphine and allied compounds has long been a clinical impression. Clinical studies, however, have yielded irregular results. The frequent use of mercurial diuretics and these drugs during the treatment of cardiac failure makes the study of their interaction a matter of some importance.

Our study was divided into 2 parts: the action of morphine on diuresis in patients with congestive heart failure, and in normal persons. In patients with heart disease the diuresis was initiated as a result of mercupurin. The study in normal persons was made during water diuresis.

All cardiac subjects studied were patients who remained in congestive heart failure despite complete bed rest and full digitalization. All patients suffered from the type of cardiac decompensation in which frequent mercupurin injections were needed to mobilize edema. Each patient received 3 Gm. of ammonium chloride daily and a low fluid, salt-poor diet. As soon as daily weights were stabilized on bed rest, mercupurin was given in

each case in order to initiate diuresis. In order to establish the type of response obtained with mercupurin alone, control diuretic curves were obtained on a group of 6 patients, each of whom received 2 cc. of mercupurin intravenously. Nine observations were made on these 6 patients. One patient was studied 3 times, 1 patient twice, and 4 patients were each studied once. Nine patients were then studied to determine the effect of morphine on mercurial diuresis. Two cc. of mercupurin were given intravenously and when diuresis was well established the patient received 0.01 Gm. of morphine sulfate intramuscularly — usually about 80 minutes after the injection of mercupurin. The urine flow was followed for 3 to 5 hours after mercupurin. The patient was then allowed to reaccumulate edema to the original weight level, and 2 cc. of mercupurin alone were given. Thus, a control diuretic curve with which to compare the curve under the influence of morphine was obtained on each patient.

RESULTS. CARDIAC PATIENTS. Nine patients in congestive heart

failure were studied to note any effects by morphine on the diuretic curve. In 3 patients morphine was found to have an antidiuretic effect.

The first patient was studied repeatedly. In 2 separate observations, each with 1 or 2 control curves, morphine, when administered after the diuresis was in progress, caused a definite suppression of this diuresis. This was first noted 40 minutes after the administration of the drug and persisted for as long as 2½ hours. The urine flow fell from 10.3 cc. and 7.4 cc. per minute to 2.35 cc. and 3.7 cc per minute respectively, and then gradually rose to 7.75 cc. and 5.8 cc. per minute at the end of the period of study. In a third observation, when morphine was given 10 minutes before mercupurin, i. e., before the diuresis developed, the diuretic curve was flattened and ranged between 1.47 and 5.14 cc. per minute and had not risen to the control level, 8.5 cc. per minute, 4 hours after morphine was given. As an additional control in this patient, a sterile water injection was given intramuscularly after the development of the diuretic state but the diuretic curve was unaffected. The intramuscular injection of 75 mg. of demerol after the diuresis had started produced in this same patient the same antidiuretic effect

as morphine and caused a slight decrease in urine chloride concentration. However, the effect was noted sooner (24 minutes after demerol was given).

There were 6 cardiac patients who showed no antidiuretic effect with morphine during mercurial diuresis. It should be noted that perhaps a larger dose of morphine would have given an antidiuretic effect in these patients.

The antidiuretic effect was noted in 2 of the 4 normal subjects studied. Again it should also be noted that the dose of morphine 0.01 Gm., used here was relatively small and conceivably a larger one might have made the antidiuretic effect apparent.

The mechanism of the antidiuretic action is uncertain. Renal ischemia might be suspected, as it is known that morphine causes liberation of epinephrine in dogs and epinephrine can cause diminished renal blood flow. In our patient there was no change in renal plasma flow during the antidiuretic period. Debodo is of the opinion that morphine inhibits water diuresis by an action upon the hypothalamic-hypophyseal system, probably by increasing the secretion or liberation of the antidiuretic hormone. The liberation of this pituitary hormone could be a release phenomenon, or morphine could stimulate the hypo-

thalamic - hypophyseal system either by action on the supra-optic or paraventricular nuclei or on the pituitrin secreting cells themselves. The intimate details of the mechanism are, of course, not yet known.

It is suggested that the anti-diuretic effect of morphine and

demerol, while probably not operative in all patients, cardiacs or otherwise, is of sufficient importance in some cases of cardiac tain poor results with mercurial decompensation to account for certain poor results with mercurial diuretics.

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U. S. P. H. S. ATOMIC RADIATION UNIT

Formation of an Atomic Radiations Unit in the Chemical Section of the Industrial Hygiene Division, U. S. Public Health Service, was announced by Dr. J. G. Townsend, Chief of the Division. Duncan Holaday, engineer (R), is in charge of the new unit.

The new unit will advise and assist State industrial hygiene units in detecting and evaluating health hazards produced by the use of radioactive isotopes and high energy machines such as X-ray machines and betatrons.

Radioactive isotopes are used primarily in scientific research. X-rays are increasingly used in industry for the inspection of finished products. Fluoroscopes are fairly commonly used in the citrus fruit, tobacco, and retail shoe industries.

It is believed that institutions and industries are handicapped in their desire to use radioactive isotopes and high energy machines by their lack of information about the safe handling of dangerous quantities of radioactive materials. The new Atomic Radiations Unit, working through industrial units in the States will help institutions and industries evaluate their hazards and establish safe working conditions.—*Federal Security Agency, U. S. Public Health Service, Industrial Hygiene Division.*



¶ The art of medicine is a question of timeliness; wine timely given helps, untimely harms.
—Ovid

LOCAL ANESTHESIA IN THE TREATMENT OF ABSCESS

By Frank S. Stanton, M.D.

Condensed from Clinical Medicine

THE opening of an abscess is usually an office procedure. Being a proctologist I shall discuss proctologic abscesses. If a patient is found to have an ischio-rectal abscess it is the doctor's duty to open the abscess at once, rather than to waste time in finding an available operating room, and an available surgeon. Every minute that an ischio-rectal abscess is permitted to continue developing pus and pressure, complications may develop.

There is also the likelihood that the patient cannot afford hospitalization. To have a patient spend money that he cannot afford in order to buy the above facilities is not fair treatment.

The expert in the treatment of rectal diseases by office methods will use local anesthesia, in the form of monacaine, nupercaine, novacaine, or whatever local anesthetic is the choice of the operator.

The operation may be completed, including the anesthesia, in 10 minutes. The patient is ambulant and his suffering has ceased. He will not suffer while his abscess is draining and it will drain better if he is somewhat active, than if he is lying in bed.

I do not say that this abscess will get well as a result of incision and drainage. The truth is that, excepting in the rarest cases of extreme good luck, it will not get well. When such an abscess is opened or breaks open spontaneously it is no longer an abscess. It is then a fistula, and should subsequently be treated as a fistula.

TECHNIC. Before doing anything else we should mark what looks like the spot where this abscess would head up if permitted to do so. Unless this spot is marked, we are likely to lose sight of it after the anesthetic is injected. Silver nitrate is satisfactory for making a mark, rather than iodine.

It is even a good idea to mark the lines of the incision which we intend to make after anesthesia is established. This mark should be a line two or three inches long, running more or less parallel to the gluteal cleft and as far away from the anal margin as can properly be done.

The injection of the local anesthetic should be begun at a point about two inches away from the center of the site of incision. After the area is cleansed, a spot

should be made on the skin with carbolic acid (phenol 95%), on a wood applicator rather than with a metal probe. The wood will soak up some of the solution and make a discreet spot.

When this small spot is made on the skin, the needle is then inserted into the very superficial layers of the skin. To do this the needle should be laid flat against the skin with the bevel at the end of the needle against the skin. In this way the needle may be inserted into the superficial layers of the skin without hurting the patient.

The first drop of the anesthetic establishes a wheal. The needle may then be carried a bit deeper. Injecting as we go, the needle should be advanced with the idea of forming a complete ring of injected skin around the summit of the abscess. After the first syringe-full has been injected, or even before, we should change to a slightly larger needle. I use a one-inch 23 gauge needle for this. By going around the abscess, injecting liberally into and immediately under the skin, I do what might be looked upon as a "block" anesthesia. If the skin over the summit of the abscess is too thin to admit injection, keep away from it. It will be anesthetized anyhow.

The objections expressed con-

demning local anesthesia near abscesses are based on the theory that we are likely to spread the infection or get it into the blood stream. This idea got into a book and so will be found in all books henceforth. It seems strange that if such things are likely to happen that some such thing has not happened here at the clinic where many such operations have been performed.

Do not insert the needle into the abscess cavity. In addition to it being the wrong thing from the technical point it also will, because of the increased pressure, cause pain to the patient.

INCISION. We should always be careful to make the incision directly over the point where we think the abscess will erupt if permitted to do so. The incision should be made with a new, sharp pointed blade of the Bard-Parker type. It seems best to make a slit in the skin in order to plainly mark the incision. The scalpel should then be placed at right angles with the skin so as to insert the point of the scalpel into the abscessed cavity. We should not use the scalpel as a bayonet or a harpoon, but keep cutting, not stabbing until the abscess is reached. The opening should be liberal, but packs, wicks or drains are not used.

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¶ The oral administration is an improvement.

ORAL EMETINE IN THE TREATMENT OF INTESTINAL AMEBIASIS

By Bliss C. Shrapnel, M.D.

Condensed from the American Journal of Tropical Medicine

TWENTY-FIVE adults and 5 children with intestinal amebiasis were treated with emetine hydrochloride in enteric-sealed tablets, administered orally. The excellent results obtained in this study indicate that oral therapy provides a concentration of emetine in the intestinal tract which closely approaches the amebicidal concentration necessary to eradicate the parasite, without producing toxic side effects.

It has long been known that emetine is a much more effective amebicidal agent than any of the newer drugs on which *in vitro* studies have been carried out. Since emetine has a powerful, direct, amebicidal action, a property demonstrated in *in vitro* studies, oral therapy should eradicate the parasite. However, its concomitant powerful emetic action, resulting in severe salivation, nausea, and vomiting, has prevented administration of sufficient amounts to prove effective parasitologically. A few attempts had been made to provide protective coatings such as keratin or salol, or to combine the salt with other drugs in the form of

emetine bismuth iodide, or emetine antimony iodide, in order to lessen the emetic effect. These results have, on the whole, not been successful. Emetine subcutaneously therefore remained the drug of choice in the management of extra-intestinal amebiasis.

The drug used in this study was emetine hydrochloride, prepared by Eli Lilly Company, and consisted of "enseals," or enteric-sealed tablets, to be administered orally. Each tablet contained one-third grain of alkaloid, and was designed to release its contents into the lower bowel approximately 3 to 4 hours after ingestion, thus avoiding the emetic effect of its presence in the stomach, and upper intestinal tract. Little is known of the amount of absorption of emetine that can occur from the large bowel, but from the results of this study it is believed to be minimal.

A standardized dosage schedule was used throughout, as follows:

Children: One tablet ($\frac{1}{3}$ gr.) of emetine hydrochloride, orally, three times a day for 12 days. Total: 12 gr. in 12 days.

Adults: Two tablets ($\frac{2}{3}$ gr.) of emetine hydrochloride, orally, three times a day for 12 days. Total: 2 gr. in 12 days.

As the avoidance of the emetic effect depends entirely on the protective coating of the tablets, particular care was taken that no cracked, chipped, or disintegrated tablets were administered. The tablets are small enough to be swallowed whole by small children.

It was pre-supposed that some tablets would be passed through the entire intestinal tract without liberating their contents, especially in cases of acute dysentery. This was found to be true in two cases in which tablets were seen in the rectal lumen during a proctoscopic examination. The standard dosage was maintained throughout, however, as in ordinary treatment it would be impractical to determine exactly how many tablets had dissolved, of the total given.

All patients were observed daily on ward rounds and questioned closely as to symptoms of abdominal cramps, diarrhea, nausea or vomiting, insomnia, joint pains, malaise. Insofar as practicable the following routine was established.

(1) Daily microscopic examinations of stools for amebae. Specimens of all stools passed by

each case were examined daily by the author before, during, and for a few days following, the course of treatment. Most cases harbored other intestinal parasites, notably helminths, and were given vermifuges and saline purges before and following the emetine. These stool specimens were also carefully examined for amebae.

(2) Daily cultures of stools for micro-organisms.

(3) Daily urinalysis.

(4) Blood pressure readings.

(5) Complete blood count every third day.

(6) Electrocardiogram every three days, except on infants.

(7) Proctoscopic examinations before and after treatment.

(8) Daily count of number of stools passed.

All cases were allowed out of bed as much as desired. No restrictions as to diet were followed, the patients usually taking the full diet.

There were five cases of intestinal amebiasis in children, of ages ranging from 1-5/12 to 9 years. There were two cases of acute dysentery, two of chronic dysentery, and one "carrier" state. All harbored other intestinal parasites, notably helminths and presented the picture of malnourishment, underdevelopment and secondary anemia. They were given the usual vermifuges

and purges as well as oral emetine hydrochloride. None of these children manifested vomiting or toxic manifestations during the administration of oral emetine. All showed a steady clinical improvement. The amebae disappeared from the stools between the third and fifth days of treatment, appetites improved, and the frequency of bowel movements diminished. A moderate diarrhea persisted in one case. He was given a course of sulfaguanidine as pus cells were noted in the stool specimens. The diarrhea promptly subsided and the pus cells disappeared.

Twenty-five adults, of ages from 18 to 66 years, were treated with a standardized dosage of two tablets of emetine hydrochloride, orally, three times a day for 12 days, a total of 24 grains in 12 days. This series included 6 cases of acute dysentery, 13 of chronic dysentery, and 6 of the "carrier" state.

There were no serious toxic symptoms manifested in this group. No vomiting occurred in any case, care being taken to administer only complete, unbroken tablets. The diarrhea of the acute cases subsided rapidly, the number of stools reducing to 2 or 3 daily, then to none, or one, daily, by the end of the course of treatment. The abdominal cramps and tenesmus responded quickly,

usually by the second or third day. Some of the chronic and "carrier" cases, who had not had diarrhea, began to have two or three soft stools daily during the treatment, but this was not accompanied by cramps or tenesmus. This was not considered a toxic effect. The trophozoites of *E. histolytica* could not be found in stool examinations, on the average, by the third day of treatment, but cyst forms could be found as late as the sixth day.

Twenty-four of the 30 cases treated with oral emetine were re-admitted as hospital patients for recheck studies, from 2 to 9 months after receiving the drug. Clinical cure was obtained in all cases, but parasitologic cure failed in one adult, who was found to harbor *E. histolytica* trophozoites, seven months after receiving the drug.

The present series of cases is small, but some conclusions can be drawn. Oral emetine, in the form used in this study, is a drug which is easy to administer, does not produce toxic symptoms in the dosage as reported herein, and provides effective results.

That the drug reaches the amebae in the ulcerated areas of the intestine can be demonstrated by following with the proctoscope the progress of a patient with rectal ulcerations who is receiving the drug. A rapid decrease

in the size of the ulcers, with healing, is evident. The presence of secondary infection of the amebic ulcerations will, however, prevent complete healing, although the amebae will disappear from mucosal scrapings, and the stools. The two cases in this series, whose rectal lesions failed to heal completely with oral emetine treatment, responded rapidly to sulfaguanidine and sulfadiazine, indicating a superimposed secondary infection of the amebic lesions.

The low or absent toxic effect of oral emetine in the dosage as used in these cases, is aptly demonstrated by the absence of toxic symptoms in the five children treated with oral emetine. The subcutaneous administration of one grain of emetine hydrochloride daily for 12 days, as was given orally, to these five children would have been dangerous, if not lethal. The adult dosage, although comparatively not as large as given to children, was twice the maximum recommended for subcutaneous administration, and failed to produce toxic effects.

It is thus possible, with the drug as used in this study, to administer orally, and without producing toxic effects, at least double the amount of emetine hydrochloride as could be done safely by subcutaneous administration.

The ability to administer a larger amount of emetine hydrochloride provides a method of maintaining a higher concentration of the drug in the intestinal tract than was formerly possible by the subcutaneous route.

The results of this study indicate that the dosage used closely approaches the amebicidal concentration necessary to eradicate the parasite from the intestinal tract.

No difficulty was found in administering some other drugs to patients receiving emetine orally. Atabrine, hexylresorcinol crystals, magnesium sulfate solution, ferric ammonium citrate solution, sulfaquuanidine, sulfadiazine, and penicillin have all been given to patients in this series, without interference or toxicity.

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TAJ—RDD



¶ When a thought is too weak to be expressed simply, it is a proof that it should be rejected.
—Vanvenergues

A NEWER TREATMENT OF SCABIES

By Harry M. Robinson, Jr., M.D., and Harry M. Robinson, M.D.

Condensed from the Bulletin of the School of Medicine of the University of Maryland

FORTY-FOUR cases of scabies have been treated with a tyrothricin-benzyl benzoate mixture. A satisfactory result was obtained in all but one case. This method of treatment can be recommended in the treatment of scabies complicated by secondary coccogenous infection in children or adults and obviates the necessity for using more than one method of treatment, or more than one preparation.

The following formula is the one used in the conduct of this study:

Tyrothricin	0.05%
Benzyl benzoate	30.0%
Benzocaine	3.0%
23 H Alcohol (ethyl)	65.0%
Distilled water and flavoring agents q.s.	

Each patient was furnished with a bottle containing 6 ounces of the benzyl benzoate-tyrothricin mixture and was instructed to use it in the following manner:

1. Open blisters and remove crusts with a needle.

2. Take a warm bath with copious amounts of soap and water.

3. Dab dry.

4. Rub the solution on lightly from neck to toes twice daily for

the next two successive days.

5. After the second day take a bath as at first and then report to the doctor.

6. Scabies is a contagious disease and every member of the family that is infected should be treated.

7. All bedclothes, underwear, towels, etc., that come into contact with the infected skin should be sterilized by boiling.

A noteworthy result in all but one of the cases treated was the rapidity in which itching was controlled. Some of the patients with enough intelligence to evaluate their subjective symptoms reported that almost all the itching had subsided in 24 to 48 hours. The mothers of the children reported that the children slept well after the first 48 hours of treatment. The patients were observed every 48 hours for the presence of any characteristic lesions of scabies. No lesions were found after 4 days of treatment. The length of time necessary to heal all lesions completely varied with the severity of the case, but in no instance exceeded 14 days. The shortest time necessary for complete involution was 6 days.

There was one failure in this series, who, after 14 days of treatment still had symptoms, and it was necessary to change to a sulfur preparation for a satisfactory result.

No serious reactions were encountered in this series. Some of the patients complained of a temporary feeling of burning or tingling which immediately followed the application of the mixture

but which quickly subsided. The mother of the 2-month-old child stated that the child cried after the treatment and that the skin became quite red. This was not observed when the child was examined; therefore the treatment was not changed and the child recovered from scabies in 6 days. It was necessary to discontinue the treatment in one case because of an untoward reaction.

DMP—RDD



ARTIFICIAL ARMS FOR VETERANS

Veterans Administration announced it is distributing three new types of artificial arms to approximately 5,000 amputee-veterans through some 350 artificial limb dealers over the nation.

The arms are the first concrete products of an artificial limb research program financed by the federal government.

The new arms also are available to an estimated 200,000 civilian amputees through the same independent distributors.

The arms are: (1) The Northrup above-elbow and below-elbow arms developed by the Northrup Aircraft Corporation, Hawthorne, Calif.; (2) the Fitch dual control arm developed by the U. S. Navy in its research shops at Philadelphia, Pa., and (3) the Hosmer arm developed by the A. J. Hosmer Corporation of Santa Monica, Calif.

These arms incorporate a number of improvements that enable amputees to operate them with greater facility and for a wider range of uses than was possible with the former artificial arms.

Veteran-amputees may obtain information about the new arms from a new VA booklet, "News About Artificial Arm Developments," which is available at any VA office.—*Veterans Administration Release.*



¶ The wisest man is he who does not fancy he is so at all.—*Boileau*

EARLY DIAGNOSIS OF CARCINOMA OF THE UTERUS— THE PHYSICIAN'S RESPONSIBILITY

By Harold O. Jones, M.D.

Condensed from the Texas State Journal of Medicine

COMPARATIVE studies of statistical reports from clinics treating carcinoma of the uterus show the percentage of cures to be about 25 to 30 for carcinoma of the cervix, and about 45 to 51 for that of the body of the uterus. There has been no major improvement in this percentage during the last 15 or 20 years; nor has there been any fundamental change in the treatment.

CARCINOMA OF THE CERVIX. Meigs has recently revised the radical Wertheim operation for carcinoma of the cervix, and has combined it with irradiation, but there has not yet been time for the results to be conclusive. It is certain, however, that with sulfa drugs and penicillin available, the primary mortality will be lessened.

The percentage of cures in those patients treated by irradiation alone is slightly better than that obtained by the radical operation, allowing for the difference in primary mortalities (9.5% in the operative group; 1-2% in the group treated with irradiation).

Though the ultimate mortality is certainly higher in those cases

which show lymph-gland involvement, a surprising number do respond satisfactorily to treatment.

In my opinion, the best method of treatment of carcinoma of the cervix is radium and roentgen-ray.

CARCINOMA OF BODY OF UTERUS. Studies of the results of treatment of carcinoma of the endometrium have shown a slight but steadily improving percentage of cures in recent years. The best method of treatment is irradiation, followed by panhysterectomy, and postoperative irradiation with x-rays. No attempt is made to remove the lymph glands of the pelvis.

Irradiation alone is not sufficient for the cure of this disease. It should be relied upon only when there is absolute contraindication to radical surgery.

FACTORS IN DIAGNOSIS. The lay public must be kept informed as to the general aspects of malignant disease, and impressed with the importance of periodic physical examinations.

The anatomic location of the uterine cervix permits gross examination without difficulty; its

relative insensitivity makes biopsy possible. The only real hope for cure of carcinoma of the cervix lies in a diagnosis made so early that the aid of a microscope is necessary. I am convinced that cure could be obtained in 80% of such cases. Biopsy of the cervix is an office procedure, and is easy and painless; it is the only method of final analysis.

On the other hand, the endometrium is not easily studied by biopsy, and its pattern is variable. If the bleeding is from the uterine canal and the cervix is normal, such patients should be hospitalized, and a thorough study made of tissues obtained by curettage. The endometrium, in response to malignant growth, tends to project into the uterine cavity and produce symptoms so that these patients are usually seen earlier than are those with cervical lesions.

Considerable progress is being made in the early diagnosis of uterine carcinoma by the study of vaginal smears. Such studies are of value only when they are made by those specially trained

in the staining methods and in the interpretation of the changes in the cells.

The Schiller test delineates the abnormal tissue from which biopsy specimens are to be taken. It is not a test for cancer. This procedure is of great value, and should be used routinely in the differential diagnosis of lesions of the cervix.

I have adopted the slogan: "any woman who bleeds from the cervix or uterus after establishment of the menopause has carcinoma unless another cause can be proved."

If the menopausal woman being treated with estrogens does not stop bleeding in a few weeks after removal of the drug, she should be submitted to investigation. Patients with an early carcinoma of the cervix can also bleed after being given estrogens. In general, the longer the period of time between cessation of flow and the onset of bleeding in patients using estrogens, the more certain the presence of pelvic pathology.

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CBL—HBJ



§ Ordinary people think merely how they will
spend their time; a man of intellect tries to
use it.—Schopenhauer

THE USE OF BAL (2, 3-DIMERCAPTOPROPANOL) IN THE TREATMENT OF AGRANULOCYTOSIS FOLLOWING INTENSIVE ARSENOTHERAPY FOR SYPHILIS

By Howard L. Holley, M.D., Birmingham, Alabama

Condensed from the Annals of Internal Medicine

TWELVE cases of agranulocytosis occurring during arsenotherapy of syphilis are reported. Immediate cessation of the arsenical, and early treatment with BAL was instituted. There were no deaths. The results described reflect the therapeutic action of BAL and indicate also the necessity for both prompt and adequate treatment in order to decrease the mortality in this complication occurring in arsenical therapy. Prior to the use of BAL the mortality rate in agranulocytosis varied between 50-70%.

BAL is an anti-arsenical, 2,3-dimercaptopropanol, that was first used by the British for Lewisite gas burns. It is from this that the name BAL (British Anti-Lewisite) is derived. Investigators have recently found that this compound is of value not only for local arsenical reactions but for systemic reactions as well.

The toxicity of arsenicals has been shown to be due to the combination of the arsenic radical with the SH groups of the activating protein of enzyme systems to form a stable compound, which thereby interferes with tissue res-

piration. BAL through its selective affinity for the arsenic radical may prevent or even reverse this reaction. The resulting compound is known as thioarsenite, which is more stable and is easily excreted.

The drug is dispensed in a stable solution using peanut oil with benzyl benzoate as a solvent. The dosage recommended is 2.5 mg. per kg. at each injection. This is repeated every four hours for the first two days, then once or twice daily thereafter for six days. Adjuncts to this treatment are necessary to combat infection present in the majority of these cases. Doan has shown through his studies on the correlation of bone marrow and peripheral blood observations that approximately two weeks may be required for the maturation of the immature myeloblast to the mature polymorphonuclear neutrophilic leukocytes. It is in this phase of the complication that the so-called "antibiotic reprieve" is effective, and then only if the insult is of mild and temporary nature. Penicillin is the drug of choice used to effect this reprieve. If the damage to bone marrow is so potent that

the myelopoiesis is more than transiently impeded, this temporary suppression of secondary bacterial invaders is of no avail.

The histories of our 12 patients were not unusual. None gave a history of sensitivity to any drug, although 50% of the cases had been previously treated with arsenicals. The type of onset in most of the cases was classical, with general malaise, headache, fever and sore throat. However, in two cases there was no pharyngitis, either concomitant with or after the febrile reactions. The reaction occurred in the last half or near the end of treatment in the majority of cases.

Routine blood counts were normal on admission with the exception of one case admitted with agranulocytosis. The blood picture in all the cases developing the reaction showed a leukopenia with complete absence or marked reduction of granulocytes.

Treatment was routine in all cases. BAL was given in 1.5 cc. (10% solution) doses every six hours for 48 hours; then 2 cc. daily for six doses. In three cases multiple blood transfusions were administered. In addition to this, the following general supportive measures were given: 5% dextrose solution intravenously to maintain the water balance; sodium perborate mouth washes to decrease secondary infection;

and vitamin therapy. In some of the cases pentnucleotide and liver extract were given.

Inasmuch as the majority of these patients received conventional supportive treatment, clinical evaluation of the efficacy of BAL is difficult. Indeed, this is true in view of the fact that it was not feasible to carry on a control series of patients with the same disease but receiving no BAL. In spite of these difficulties, the results obtained suggest that BAL, administered early, and in proper dosage, may contribute to and accelerate the recovery of patients having agranulocytosis caused by the parenteral administration of arsenical drugs. This may be explained by the fact that BAL, through its selective affinity for the suppressing agent, may decrease the time that is required for the bone marrow to return to its normal function.

BAL is not an innocuous drug. If the dosage level of under 3 mg./kg. is adhered to, toxic reaction rarely occurs. But when this dosage is exceeded, some or all of the following reactions may occur: nausea, vomiting, headache, generalized aches and pains, burning sensations in the mouth, nose and eyes; sweating, restlessness, pain in the limbs, joints and trunk muscles. These untoward reactions to BAL seldom persisted for more than 30 minutes.

SOME VISUAL DEFECTS AND OCULAR DISEASES THE GENERAL PRACTITIONER OUGHT TO KNOW ABOUT

By C. Dwight Townes, M.D.

Condensed from the Kentucky Medical Journal

IT is appropriate occasionally to remind physicians in other branches of medicine than ophthalmology of certain conditions often seen first by them which should be referred to an oculist early so that the patient might have the best possible chance of maintaining or restoring useful vision. We shall present for consideration a few such conditions.

OPHTHALMIA NEONATORUM. Treatment of this serious disease, formerly responsible for a high percentage of blindness, is much more satisfactory since the advent of penicillin. With intramuscular administrations of penicillin, 10,000 units every three hours, with total dosage seldom exceeding 100,000 units, the infection responds readily, often spectacularly. Usually a negative smear is obtained in 18 to 24 hours. No local treatment other than frequent boric acid or normal saline irrigations is required.

CONGENITAL CATARACT. This defect is sometimes noted at birth but usually is not discovered until the child is several weeks or months old. Because of the small infantile pupil and the undeveloped

power of fixation, casual inspection of the eye may fail to reveal a partial cataract. Examination should be complete, including ophthalmoscopy with a widely dilated pupil, under general anesthesia if necessary. Treatment depends upon the size and type of the lens opacity, how much it interferes with transmission of light, and upon the condition of the eye as a whole. Functional development of the retina depends upon its actual use in the visual process. If this process is obstructed by lens opacities for three or four years retinal formation fails to develop properly and good vision cannot be obtained by operation to remove the opacities.

Therefore, if examination reveals an opacity which interferes with useful vision, and operation appears necessary, it is important that operation be done early. Successful operation can be done upon babies less than one year of age.

OBSTRUCTION OF NASOLACRYMAL DUCT. Occasionally an infant will present constant watering of one, rarely both, eyes. Such epiphora is the result of atresia or obstruction of the nasolacry-

mal duct. Sometimes pressure over the lacrymal sac, below the inner canthus, will relieve the obstruction. More often it is necessary to pass a probe through the canal. Although some advocate probing without an anesthetic, it is more easily performed under general anesthesia. Since the obstruction is due to an epithelial plug or membrane, it does not tend to recur and one probing ordinarily is sufficient. However, if dacryocystitis has occurred, the procedure may have to be repeated.

STRABISMUS AND AMBLYOPIA EXANOPSIA. It is rapidly coming to be realized, by physicians and general public as well, that children will not outgrow crossed eyes if left alone, but that treatment must be instituted early and continue perhaps throughout the patient's entire childhood. Our aim should be, (1) to preserve good vision in both eyes, (2) to straighten the deviation by whatever means necessary, (3) to develop binocular single vision if possible.

As soon as crossing of the eyes is noticed the child should be taken to an oculist for a complete examination, to determine the type of anomaly, to measure the refractive error, and to rule out other pathology.

Most important in our routine of treatment is preservation of

good vision in both eyes. If a monocular squint is allowed to persist the squinting eye, because of disuse, loses its ability to see well. The faulty alignment of the eyes cause diplopia, or double vision. Diplopia is intolerable and the brain quickly overcomes it by disregarding, or suppressing, the image of the squinting eye, and the visual acuity rapidly deteriorates. Such a condition is called "Amblyopia Exanopsia," partial blindness from disuse. If untreated until the age of seven or eight years, it is impossible or very difficult to improve the vision.

Various measures are used to convert a monocular into an alternating squint, which means that good vision is present in both eyes. Often the judicious, supervised use of atropine drops over a long period of time will accomplish this end. Sometimes it is desirable to use more elaborate equipment to give orthoptic training.

Only a few cases of a special type of squint can be straightened by glasses alone, although the majority of cases are benefitted by wearing properly fitted lenses. If necessary, glasses can be prescribed for very young infants, even under one year of age. Prisms, either in the form of fitters or incorporated in the patient's glasses, likewise are

valuable in realigning the eyes.

Surgery is often necessary to achieve the desired aim. However, operation usually should be deferred until about the eighth year. If conservative non-surgical measures are carried out, less radical surgical treatment will suffice, and results will be more satisfactory.

CONTUSION INJURIES. Patients with contusion injuries of the globe and hyphemia should be put to bed and kept quiet for several days after the blood has been absorbed. Atropine should not be instilled. On the other hand a myotic drug should be used to constrict the pupil in an effort to prevent glaucoma should secondary hemorrhage occur.

GLAUCOMA. There are several types of the disease.

(1) **Acute Congestive (Incompensated) Glaucoma**, characterized by sudden onset, cloudy cornea, dilated oval pupil, ciliary congestion, diminished vision, greatly increased intraocular pressure, and agonizing, exacerbating pain in the eye and side of head.

It is not infrequently confused with acute iritis, from which it must be differentiated before treatment is begun. The drug most beneficial in iritis, atropine, to dilate the pupil, is absolutely contraindicated in glaucoma. Here the pupil must be constricted

by a myotic such as pilocarpine or eserine. The principal distinguishing features are that in iritis the eyeball is soft, whereas in glaucoma it is stony hard; and in iritis the pupil is small and round while in glaucoma it is dilated and oval.

(2) **Chronic Non-Congestive (Compensated) Glaucoma** is slow and insidious in its development, too often progressing so far that only a small tubular field of vision remains before the patient is aware of anything being wrong. Central visual acuity may remain good to the last while peripheral vision is gradually lost. As a rule compensated glaucoma is a disease of middle and later life, although it may be encountered any time after puberty. All oculists are constantly on the alert for glaucoma. The disease is either actually on the increase or the diagnosis being made more frequently since more cases are being seen than formerly.

There are no symptoms which in the early stages point unmistakably to a diagnosis. Among the early signs the patient may notice, are:

1. Disturbance of dark adaptation.
2. Ocular discomfort at night or in movies.
3. Frequent change of glasses.
4. Ocular tenderness and headache early in the morning.

5. Recurrent periods of blurred vision.
6. Halos around lights.

SEPARATION OF RETINA. There are three types of separation, or detachment of the retina:

1. Primary or idiopathic.
2. Secondary.
3. Traumatic.

All types require early recognition and treatment for satisfactory restoration of vision, but it is only the second type which will be discussed briefly today. The precipitating cause of separation of the retina may be an intraocular tumor, usually a malignant melanoma or melanosis of the choroid, which has grown to sufficient size that it pushes the retina out of position.

In such instances it is imperative that the eye be removed immediately because these tumors are highly malignant and metastasize rapidly once they have extended beyond the confines of the eyeball.

HEMORRHAGIC DIABETIC RETINITIS. With increasing frequency we are seeing severe hemorrhagic retinitis in diabetic patients even

though many of them have urinary and blood sugar well controlled. Usually vascular degeneration in the retina is found in those whose diabetes is of long standing. It is evident that control of sugar levels is not sufficient to preserve the integrity of the retinal vascular system and to prevent increased permeability of the capillaries. Hemorrhagic retinitis is now considered as a part of the disease itself, rather than a complication of diabetes. Diets with high protein, 100-200 Gm. daily should be used for many months to correct the low plasma albumin levels.

CORNEAL TRANSPLANT. This procedure is indicated in eyes which present corneal opacification without serious involvement of other ocular structures. In such cases replacement of the central portion of the cloudy cornea with clear tissues from another healthy cornea results in a clear space through which the patient can have improved vision. The number of cases meeting these indications is actually very small.

FOR—RDD



¶ A man had rather have a hundred lies told of him, than one truth which he does not wish should be told.—*Samuel Johnson*

THE DISC FACTOR IN LOW BACK PAIN WITH OR WITHOUT SCIATICA

By Grafton Love, M.D., Rochester, Minnesota

Condensed from the Journal of Bone and Joint Surgery

WE WOULD like to discuss the important factor in the successful handling of protruded intervertebral discs as being first accurate diagnosis.

A case history often warrants a presumptive diagnosis. The onset of trouble often dates back to injury of the lower part of the back. Recurrent attacks of more or less disabling backache occur followed by an extension of pain to the gluteal region and downward along the course of the sciatic nerve. The pain is typically of the nerve-root type. Rest in bed often relieves it. A small portion are awakened at night because of this sharp pain.

After the stage of nerve-root compression and irritation, the ligamentum flavum becomes thickened and fibrotic. This ligament further encroaches upon the spinal canal and compresses the enlarged hyperirritable nerve root.

PHYSICAL EXAMINATION. The patient frequently walks with a limp and with a list of the trunk, either away from or toward the painful side. The back is usually flattened and the erector spinae muscles are in spasm. Hyperextension and lateral bending is

painful. There is local tenderness in the region of the spinous processes in the fourth and fifth lumbar vertebrae. The straight-leg-raising test is almost always positive on the painful side. Kernig's sign is usually elicited.

NEUROLOGIC EXAMINATION. There is usually diminution or absence of the Achilles reflex, with or without slight sensory changes in the skin of the outer side of the leg and the outer and upper surfaces of the foot. Occasionally, foot drop is seen. Protruded discs are often seen in patients who have 4 or 6 lumbar vertebrae and consequently 4 lumbar discs or, in the latter case, an extra lumbar disc. Intraspinal neoplasms sometimes give the same neurologic picture as the protruded intervertebral discs.

A protruded intervertebral disc in the lower part of the lumbar region can compress the cauda equina sufficiently to produce ascending edema with a dermatome level much higher than the actual site of the lesion.

The author believes that many protruded discs cannot be localized by neurologic methods.

ROENTGENOGRAPHIC EXAMI-

NATION. A roentgenologic examination on patients who have intractable low back pain and sciatic pain and all patients with evidence of nerve-root involvement should have roentgenograms of the appropriate portion of the spinal column before surgical intervention is undertaken.

SPINAL TAP. All patients upon whom a surgical operation is contemplated should undergo lumbar puncture. Protruded discs rarely produce subarachnoid block. In two-thirds of the cases of protruded discs, the protein count will be 40 mg. or more per 100 cc.

USE OF CONTRAST MEDIA IN THE SUBARACHNOID SPACE. If errors in diagnosis are to be kept at a minimum and the operative procedure best suited to the individual case is to be employed, the introduction of lipiodol into the subarachnoid space is the most satisfactory method.

Other intraspinal lesions cause sciatic pain and must be differentiated from protruded discs. The following are some of those encountered: hypertrophic arthritis, spondylolisthesis, spondylolysis, old fractures and dislocations, tumors of the spinal cord and nerve roots, metastatic bone lesions, tuberculosis of the spinal column, and thickening and fibrosis of the ligamenta flava.

In distinguishing the many lesions that may deform the roent-

genographic shadow in myelograms, certain well-known criteria are available. The intervertebral discs are anterior to the dural sac and produce an extradural type of defect opposite the space between the two vertebral bodies. The ligamenta flava produce a lateral or bilateral type of constriction of the contrast medium at the interlaminal interspace. Tumors of the spinal cord are always intradural and those of the nerve roots are chiefly so. The defects due to such lesions are more likely to be opposite the vertebral bodies.

If there is a question as to the diagnosis of an intraspinal lesion, it is preferable to rely upon the history and physical examination rather than the roentgenographic findings.

THERAPY. All patients who have low back pain and sciatic pain do not require operation. If, in spite of a well-planned and well-executed course of conservative therapy, the condition becomes worse, and he is unable to carry on his usual activities, or if muscle atrophy or neurologic signs develop, a surgical procedure is ordered.

The removal of an intervertebral disc is a relatively simple procedure. Patients who have unilateral sciatic pain, due to a protrusion at the fourth or fifth lumbar interspace, usually require

unilateral reflection of the erector spinae at the level of protrusion. The involved nerve root is retracted between the laminae, and the fragmented disc tissue is removed. Occasionally the margins of the laminae must be removed. In case of bilateral sciatic involvement—usually due to mid-line protrusions—it is often necessary to shear off a portion of the adjacent spinous process and of the laminae, and to remove the ligamentum flavum bilaterally and the interspinous ligament to obtain adequate exposure.

At the Mayo Clinic the entire disc is not removed. When a "combined operation" is performed, a tibial graft is employed. This is placed posteriorly in contact with the lamina and spinous processes of the adjacent vertebra. The orthopedic surgeon usually fuses the last two lumbar vertebrae to the first two sacral segments.

RECURRENCE OF PROTRUDED INTERVERTEBRAL DISCS. At least three months should be set aside for convalescence. Recurrent protrusions are not common. When a patient has recurrent nerve-root symptoms after a previous removal, there is usually protrusion of fibrocartilage from the same interspace; rarely, another disc is involved.

When there are definite indications for bone grafting and re-

moval of the whole disc, this operation should be done, but routine bone-grafting is not justified in the light of our experience.

The results of 1217 patients operated upon at the Mayo Clinic during 1939, 1940, and 1941 for protruded intervertebral discs are here presented. Of these patients, 3 died in the hospital. 854 were males, 363 were females. Of these patients, 81% were followed at a subsequent time either by examination or questionnaire.

Among those who had a protruded intervertebral disc removed but had not undergone a fusion operation, 53.7% had relief from pain following operation, 36.7% had partial relief. 64.4% of these patients were able to return to the same type of work they had done before the operation.

Forty-seven patients had recurrent protruded discs. Of this number, 24 or 51% also underwent the fusion procedure at the second operation.

We consider these results satisfactory, although we would like to report a higher percentage of relief five years after removal. Better results are anticipated because with greater knowledge today a better selection of patients can be made.

Backache is one of the commonest complaints of man and since it is at times very difficult for the physician to determine the

cause and effect, how much more difficult it must be for the layman to determine whether his back-ache is caused by a protruded intervertebral disc or by fatigue or other factors.

LKF—CBH



U. S. P. H. S. RESEARCH FELLOWSHIPS

New and more liberal eligibility requirements for United States Public Health Service research fellowships were announced recently by Dr. Thomas Parran, Surgeon General, Public Health Service, Federal Security Agency, as part of the national program to secure the increased number of trained scientists urgently needed for essential research.

The fellowship program, inaugurated in late 1945, was formerly limited to students with Master's degrees, but will now be open to holders of Bachelor's degrees, Dr. Parran reported. In addition to tuition fees those with Bachelor's degrees will receive stipends of \$1,200 if they have no dependents, \$1,600 if they have dependents.

Stipends for fellows with higher degrees have been changed and are now as follows: for holders of Master's degrees—tuition fees plus \$1,600 for persons without dependents, \$2,000 for persons with dependents; for holders of Doctor's degrees—\$3,000 for persons without dependents, \$3,600 for persons with dependents.

Special fellowships can be awarded to holders of Doctor's degrees who have also demonstrated outstanding ability or who possess specialized training for a specific problem. The amount of these stipends varies with the individual case.

All fellowships awarded are for one year but may be renewed.

Applications for Fellowships are passed upon by the Central Qualification Board and subsequently by one of several Specialty Fellowship Boards representing most of the sciences. To obtain a fellowship, students must fill out application forms, available at the National Institute of Health, Bethesda, Md., and submit the form, along with transcripts of scholastic records and letters of recommendation, to the Division of Research Grants and Fellowships, National Institute of Health, Bethesda, Maryland.—*Release, United States Public Health Service.*



¶ A slip of the foot may be soon recovered; but that of the tongue perhaps never.—*Thomas Fuller*

COMPARATIVE STUDY OF POTASSIUM THIOCYANATE AND OTHER DRUGS IN THE TREATMENT OF ESSENTIAL HYPERTENSION

By Arthur Ruskin, M.D., and W. Frank McKinley, M.D., Galveston, Texas

Condensed from the American Heart Journal

HUNDREDS of drugs have been and are being used in the therapy of essential hypertension, frequently without critical analysis of their value in either abolishing symptoms or lowering the blood pressure. An enormous variation of blood pressure occurs both with and without therapy. Claims of symptomatic relief from headache, dizziness and other symptoms of essential hypertension by various methods of therapy have been countered by noted relief from symptoms in 82% of the patients who receive a simple placebo.

A restudy of the claims regarding thiocyanate therapy was begun by us in 1942. Since then we have administered six drugs, unknown to the patients, to a series of 68 clinic patients who had uncomplicated essential hypertension. The drugs and their dosages were as follows: phenobarbital, 32.0 mg. three times daily; glucophylline (methylxanthine derivative), 0.3 Gm., three times daily; mannitol hexanitrate, 65.0 mg., three times daily; niacin, 50.0 mg., three times daily; and a placebo (lac-

tose or sodium bicarbonate), 3.0 Gm., three times daily. Potassium thiocyanate was started at 0.2 Gm. three times daily following a tobacco-free interval of 3 or more days. Weekly blood levels reached 20 mg. per cent in many cases and at times, inadvertently, higher levels. The maintenance dose of thiocyanate necessary to maintain therapeutic blood levels varied from 0.2 to 1.2 Gm. daily. Blood pressures were recorded twice weekly between 9 and 10 A. M. in the same arm, by the same observer, and to the nearest 5 mm. of three readings. Constant conditions of preliminary rest and medication were observed.

RESULTS. It was found that while thiocyanate therapy was associated with more marked drops of blood pressure than the other drugs, there was tremendous overlapping. Mild to moderate drops were frequent with all six drugs. Thiocyanate therapy was accompanied in a few instances by no change or even an actual rise in pressure. This undoubtedly occurred even more frequently with the other drugs.

A graphing of results of thiocyanate therapy demonstrated that this drug generally had a more marked effect in lowering the systolic rather than the diastolic pressure. No consistent relation was found between the serum thiocyanate level and the level of the blood pressure. However, when the serum thiocyanate exceeded 15 mg. per cent, the diastolic pressure fell over 10 mm., twice as often as it failed to be lowered; whereas a fall in diastolic pressure failed to occur in the majority of cases in which the serum level was 15 mm. or less.

Relief of symptoms was greatest in the groups receiving the placebo and niacin, and least in the group receiving potassium thiocyanate. The incidence of increase in symptoms was about equal in all groups except the group receiving thiocyanate which presented the most marked additional complaints. Not unexpected were the occasional dizziness in the hexanitrate treated patients and sleepiness or loss of libido in the phenobarbital treated group. The toxic effects of potassium thiocyanate included dizziness, weakness, headache and nausea.

COMMENT. We are faced with a choice between the clinical impression of the apparent general inefficacy of potassium thiocya-

nate in relieving symptoms or surpassing the effect of a placebo or other drugs in lowering blood pressure, and the statistical evidence that administration of thiocyanate is followed by more than chance lowering of blood pressure in comparison with other drugs. With the reservation that in the present study we measured, not the immediate hypotensive effect, but rather what might be called the average effect of prolonged administration of the drugs, it is reasonable to conclude that some degree of lowering of blood pressure generally follows the administration of all six drugs and that statistically, our results favor the effectiveness of thiocyanate. The hypotensive effect of thiocyanate on the diastolic pressure is, at least in part, dependant on high serum levels with their attendant toxic effects.

In summary, the best symptomatic relief was obtained by the administration of a placebo or niacin. Glucophylline, phenobarbital and mannitol hexanitrate decreased complaints in fewer patients and increased the symptoms in more patients than the placebo or niacin. Potassium thiocyanate, on the other hand, maintained or increased the patients' complaints in almost one-half of the cases and decreased them in less than one-third.

All drugs, including thiocyanate, have been followed in some cases by no change in blood pressure or by an actual rise. Further studies are necessary to elucidate the mode of action of thiocyanate; it would seem from our study that its use is clinic-

ally unreliable and hazardous. Clinical reports of the efficacy of drugs and other methods in the treatment of hypertension must be viewed with scepticism, particularly in the absence of control observations.

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LBL—LBL

DRUG ALLERGIES REVEALED

Six out of every 100 Americans will be barred from the life-saving benefits of penicillin if they get pneumonia or other serious disease because they have previously had athlete's foot, ringworm of the scalp or some other fungus infection. These same six per 100 may also be unable to take streptomycin treatment.

This unfortunate result of fungus infections, bad enough in themselves, was reported by Dr. Samuel M. Peck, of Mount Sinai Hospital, New York, at a fungus disease conference at the New York Academy of Sciences. The conference is the first on the subject of medical mycology ever held in the United States.

Many of the disease-causing fungi can also produce a substance similar to penicillin. As a result, a person who never has had penicillin may be sensitive to it. When it is given as treatment, he gets an allergic reaction that may be severe enough to require stopping the penicillin.

Recent statistics on large groups of patients show that 30% to 50% of adults show signs of having acquired sensitization to fungi and their products, Dr. Peck reported. About 75% to 90% of the general population above the age of 12 is said to have been affected at one time or another with fungus disease.—*Science News Letter*, November 15, 52:308, 1947.

Use of an oil emulsion in the treatment of blankets, bed linens and floors in TB hospitals is under study at VA's hospital in Bedford, Mass. If the method proves successful in the control of tuberculosis infection, it will be introduced in other VA hospitals.—*Release, Public Health Service.*

☞ Mortality has been reduced from 26% to 2%.

EARLIER ILEOSTOMY IN SEVERE ULCERATIVE COLITIS

By Frank H. Lahey, M.D.

Condensed from Surgery, Gynecology and Obstetrics

IT is the purpose of this editorial to discuss the advantages of an early ileostomy in the case of severe ulcerative colitis.

It is unfortunate that several factors operate to bring about delay in these often seriously ill patients. Sometimes the mixed infections superimposed upon these acute ulcerative processes previously have been controlled by sulfasuccinate or some of the other intestinal antiseptics of the sulfa group whereby the delay factor has been encountered. Varying periods of remission from bloody diarrhea also lead to delay.

Added to these deterrents is the fact that until recently a patient with an ileostomy was one to be pitied because of the inadequate control of the liquid discharges.

We have advocated and practiced early ileostomy in patients not doing well under medical management, committing ourselves to the program of disconnecting the ileostomy and restoring the fecal stream whenever possible.

Conditions for restoring the

stream are when the patient has remained free from all symptoms for a considerable time, when haustrations as shown by barium enemas have returned to normal in the colon, when by sigmoidoscopic examination the lower bowel and rectal mucosa prove normal in appearance.

For the disagreeable aspect of an open ileostomy, the Koenig-Rutzen bag has become available. It is a bag so made with a flange cuff that it can be accurately cemented to the skin about the ileostomy so that there is no exposed skin left to become irritated.

We wish to call attention to the fact that with our ability to disconnect the ileostomy and to restore the fecal stream in proper cases, and with the complete comfort and happiness a patient now can have with a Koenig-Rutzen bag, the factors which caused an almost prohibitive mortality rate in the past in these patients have largely been overcome. Our earlier mortality in ileostomy was 26% and has now been reduced to 2%.

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(*Surgery, Gynecology, Obstetrics*, August, 85: 230-232)

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THE USE OF BLOOD DERIVATIVES IN THE TREATMENT OF CHILDHOOD DISEASES

By Charles A. Janeway, M. D., Boston, Mass.

Condensed from the Pennsylvania Medical Journal

THE clinical use of blood derivatives rests on an understanding of the physiology of the various functional components of blood and their alterations in disease. The work of the last few years has provided the pediatrician with a number of therapeutic agents which have application to his practice.

During recent years many people have been concerned with the waste of blood protein that occurs when the red blood cells, containing four times as much protein per unit volume as plasma, are discarded. Many anemic patients who require transfusion to raise their red count have perfectly normal plasma protein levels. Resuspended cells are really indicated in preference to whole blood in all types of anemia in which the deficiency is one of red cells. The use of resuspended cells has been put on a much more satisfactory basis by the demonstration during the war that the cells could be preserved as well as whole blood.

Dr. Max Strumia has en-

deavored to recover the protein component of hemoglobin by splitting off the iron-containing pyrrole group, leaving a protein, globin, behind. In order to make it safe for intravenous use, this globin must be modified chemically: therefore, their material is known as modified globin. It has a symmetrical molecule like that of serum albumin, which is the physiologic substance responsible for the maintenance of osmotic pressure in plasma. Globin solutions have a low viscosity and the material can be prepared in concentrated solution. The use of globin would make it possible to make about three times as much protein for parenteral use out of a donation of blood as if the plasma alone were used.

Indications for the use of plasma in diseases of childhood are much the same as those for its use in adult life. The principal indication for plasma is the replacement of acute plasma loss. This occurs locally in peritonitis, in the early stages of burns, in ec-

zema and impetigo in infants, in certain types of local injury, and diffusely in severe anaphylactic reactions. The use of plasma to replace losses of whole blood is satisfactory as an emergency measure, but leaves the patient anemic.

Probably the commonest use of plasma by medical men is the treatment of infections, for which there are four possible reasons; namely, to combat hypoproteinemia, to supply antibodies, to combat shock, and to supply complement.

Another frequent use for plasma in pediatrics has been in the treatment of nephrosis. Pediatricians continue hopefully to inject concentrated plasma into these poor patients with, to my knowledge, only very occasional successful results. Plasma has certain great drawbacks for the treatment of nephrotic patients. In the first place, only about half of the protein is albumin, the specific protein in which these patients are most deficient. In the second place, it not only contains all the sodium which is normally present in physiologic concentrations in circulating plasma but additional sodium added as sodium citrate to prevent coagulation.

During the war, methods

were developed by Professor E. J. Cohn and his colleagues for the large-scale separation of plasma into a number of fractions in which various physiologically active proteins are concentrated. Fibrinogen is separated in fraction I of human plasma, approximately 60% of which consists of fibrinogen, the remaining 40% comprising various globulins among which is the principle lacking in hemophilic blood. Potent but probably quite impure preparations of prothrombin are obtained in fraction III-2, a fraction which consists largely of beta globulin.

By varying the conditions under which thrombin is allowed to act on solutions of fibrinogen, various types of clots with differing physical properties are obtained. A number of different products derived from the clotting proteins have been prepared, but two particular forms have found clinical application—fibrin foam and fibrin film. The former serves the physician as sponge to control bleeding, and the latter may be used as a non-reactive absorbable membrane for various purposes in surgery. Fraction I has promise in the treatment of hemophilia. Its addi-

tion to hemophilic blood in vitro will reduce the clotting time to normal, and injection of the material has a similar effect in most instances. At present this material is only available on an experimental basis.

Fraction II contains almost pure gamma globulin as now prepared in a solution which represents a 25-fold concentration of this protein over its concentration in normal pooled plasma. Studies of its antibody content show that those antibodies in normal plasma which can be readily measured have been concentrated to the same degree as the gamma globulin itself. Its use in measles prophylaxis is doubtless familiar to you all. It has also proved to be effective in the prevention of epidemic infectious hepatitis. The process of preparation of gamma globulin from pooled normal plasma can also be applied to hyperimmune or convalescent pools of plasma.

An absolute essential for the successful operation of any blood program or blood bank is a satisfactory group of reagents for the proper typing of human blood. By pooling plasma from donors of a particular blood group, it is possible to obtain in fraction III-1

a marked concentration of isoagglutinin activity.

Fraction V contains nearly half of the total plasma protein and consists of 98 per cent normal human serum albumin as now prepared. The viscosity of 25% albumin is no higher than that of whole blood with a hematocrit of 50%, and as now prepared it contains no mercurial preservative and but one-seventh as much sodium as an osmotically equivalent volume of plasma. Its effectiveness as a blood substitute has been amply proven. Albumin is particularly useful in pediatrics because of the small volumes to be injected. Thus 10 cc. of 25% albumin will give the same blood volume increase as 45 to 50 cc. of plasma, and can be administered in much less time. It provides the protein usually deficient in hypoproteinemia with a minimum of sodium which is contraindicated in edema.

Hypoproteinemia, which is usually due to hypo-albuminemia, constitutes the chief indication for the use of albumin. For this purpose, it is best given in concentrated solution, in doses of approximately 1.0 cc. per lb. twice daily. In dosage, if 10 cc. (2.5 Gm. of albumin) is considered the osmo-

tic equivalent of 50 cc. of plasma, calculations are readily made as to safe limits for the size of each injection. We have used albumin to *prevent* the development of hypoproteinemic edema in cases of an-

uria due to glomerulonephritis or sulfadiazine intoxication. Albumin is also useful for this purpose in infectious processes in which the serum protein level tends to fall, such as typhus or spotted fever.

JPS:CHC



CANCER CURE FROM VITAMIN?

Is a cancer cure coming from a vitamin? It is too soon to tell but signs begin to point that way.

Latest of these signs appears in a report from a six-man research team headed by Dr. Sidney Farber of Children's Hospital, Boston, to the journal, *Science* (Dec. 19).

These doctors have in the past years treated well over 150 patients, suffering from many kinds of cancers, Hodgkins disease and leukemia, with two vitamin chemicals. The chemicals are difolic acid and trifolic acid, known also as diopterin and teropterin. They are closely related to folic acid, one of the new vitamins which has been useful in treating certain kinds of anemia.

The patients were all in the last hopeless stages and more than a score have died. Those still living feel better, have less pain, eat better and have more energy.

Some of this improvement may be psychological, the result of knowing a new treatment was being used. Some is believed due to the vitamins.

But the vitamin treatment is "definitely not a cure for cancer at this time," Dr. Farber stated.

The vitamin chemicals used cannot be bought at the drug store and they should not be used in routine treatment of cancer patients, Dr. Farber and co-workers agree. Dr. Farber's associates in the studies, at Harvard Medical School, Peter Bent Brigham Hospital and New England Deaconess Hospital, have been Drs. James W. Hawkins, J. Hartwell Harrison, E. Converse Peirce, 2nd, Gilbert G. Lenz and the late Dr. Elliott C. Cutler.—*Science News Letter*, January 10, 53:30, 1948.

RECENT ADVANCES IN HEPATIC AND BILIARY DISEASE

By Albert M. Snell, M.D.

Condensed from the Quarterly Bulletin of the Northwestern University Medical School

EPIDEMIC HEPATITIS. During the period from 1942 to 1945, much was learned about the pathology and physiology of the liver in relation to infectious hepatitis, and also about the clinical syndrome which in its milder aspects differed in no essential particular from that of the well-known catarrhal jaundice. Experiments on the transmission of the disease and epidemiologic studies soon established the fact that the etiologic agent was a virus. It was shown that the disease could be transmitted by both parenteral and oral routes.

The by-products of the epidemic are now of particular concern because they are by no means so well known as the acute manifestations of the disease. Eighteen per cent of a group of 431 unselected cases of epidemic hepatitis showed some evidence of hepatic disease more than 4 months after the first appearance of symptoms. The symptoms in these cases were not characteristic; in fact, many of the patients had been considered psychiatric casualties.

In 10% of an experimental group clinical evidence of a

chronic hepatitis developed and biopsy examination of specimens of the livers of two obtained by the punch method, gave indisputable evidence of hepatic damage 6 and 9 months after supposed recovery. The usual studies of hepatic function gave essentially normal results in these patients. Their possible status as carriers of virus and their future welfare are subjects of great theoretical and practical interest.

HOMOLOGOUS SERUM JAUNDICE. This condition may be defined as that variety of hepatitis which develops following the parenteral introduction of a particular icterogenic agent (virus S H). It is characterized by a long incubation period (60 to 120 days) and often by a fulminant and fatal course. The icterogenic agent causing it is remarkable for its resistance to all attempts to destroy it or render it inactive. It will resist, as does also the icterogenic agent responsible for epidemic hepatitis, the following sterilizing procedures: ordinary chlorination; heating to 56 C. for 1 hour; keeping for 1½ years at room temperature; freezing;

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triple ether extraction; application of 0.25% phenol for 14 months, of merthiolate or of a variety of other supposedly bacteriostatic agents.

Serum hepatitis has been observed after the use of measles and mumps convalescent serum, whole blood, pooled plasma, both liquid and dried, and both yellow fever and pappataci fever vaccine contaminated with icterogenic serum (11, 12). It has an appreciable mortality rate which is as high as 20% in some series. The size of the inoculum appears to make little or no difference, since serious hepatitis has followed the administration of 0.01 cc. of the icterogenic agent while much larger doses appear to have produced a condition of about the ordinary degree of severity. The feces of individuals with serum hepatitis are not infectious to others whereas in the epidemic form feces contain the virus.

The serum from patients with homologous serum jaundice, as early as 60 days prior to the development of symptoms, may be highly infectious when given parenterally. The clinical importance of this method of transmitting disease can hardly be overestimated, especially since the use of whole blood, plasma and other biologic products for parenteral administration is now so well established. At one time

homologous serum jaundice following the use of blood or plasma was the commonest cause of death in the United States army hospitals in England, accidents and pneumonia excepted.

The disease may be spread not only by blood and blood products but by contaminated syringes. In at least one British clinic where "late arsphenamine jaundice" was a common development during the second or third month of treatment for syphilis, the disease practically disappeared when individual syringes were substituted for the original multiple injection technic.

MEANS OF PREVENTION. The means of prevention of homologous serum jaundice are of the greatest importance. Obviously donors of blood to be used either in the original state or as plasma should be questioned carefully for any history of illness. Much more data are needed in regard to the possible persistence of the virus in the serum in cases of supposedly healed epidemic disease. Nonjaundiced persons who had epidemic hepatitis, of whom there are believed to be many, may be carriers of the icterogenic agent as well as individuals known to have been jaundiced. It has been suggested that some simple test, such as the thymol turbidity test previously mentioned, be made a

part of the examination.

Active prevention is still in the experimental stage. The importance of maintaining a diet high in protein and sources of vitamin B complex in patients receiving transfusions or plasma is obvious. The use of gamma globulin as a possible preventive measure is still under investigation. Some recorded observations seem to indicate that two doses of gamma (measles) globulin of 10 cc. each about a month apart furnish some degree of protection against homologous serum jaundice. Single doses may attenuate the epidemic form of the disease.

PORTAL CIRRHOSIS. Cirrhosis of the liver now is regarded by many as a disease which may have a nutritional disturbance as its principal etiologic agent. While it seems apparent that few physicians will encounter cirrhosis dependent on a purely dietetic basis, yet experimental observations add strong support to the present conception of cirrhosis as a disease with a nutritional background, if only that dietetic factors render the liver vulnerable to hepatotoxic substances and virus infection.

The treatment of cirrhosis has undergone considerable revision. Intake of protein has been increased, although this had formerly been interdicted. Intake of fat has been greatly liberalized.

The intake of vitamins employed as treatment is essentially unchanged. Use of various specific medicaments, chiefly lipotropic substances, have been studied also. Choline and cystine may be valuable in treatment of alcoholic cirrhosis, but there is little evidence of their value in cases of non-alcoholic cirrhosis. Methionine, given alone or in protein digests, may have its place; some good results from its use have been claimed but its value is not proved. It is certain that it is of no value in epidemic hepatitis. Liver extract also is enjoying a therapeutic vogue. Some favorable results have been reported from use of crude preparations. A special preparation for intravenous use has been valuable in the experience of the Rockefeller group in treating hepatic insufficiency. This preparation is now receiving extensive clinical trial. The Rockefeller group have given large doses of serum albumin; the initial injection is 100 Gm. or more. The effect of this treatment on nitrogen balance has been favorable and the serum albumin has risen gradually. The rate of loss is considerable, but eventually some more or less permanent effect is exerted on the serum albumin. Treatment with serum albumin sometimes produces diuresis and decreases the ascites.

FURTHER OBSERVATIONS OF PROTHROMBIN DETERMINATIONS AND VITAMIN K THERAPY IN ACUTE CORONARY OCCLUSIONS

By H. McGuire Doles, M.D., Norfolk, Virginia

Condensed from the Southern Medical Journal

THE presence of hypoprothrombinemia in patients during and after an attack of acute coronary occlusion has been reported. Since this publication prothrombin studies have been carried out in detail upon 64 cases of acute coronary occlusion and upon 657 other patients. Among the control group of patients, 74% had hypertension, 21% were suffering from diseases not related to the cardiovascular system, and 5% were normal.

Experience during the past seven years points to 70% of normal as a critical level of hemorrhage from hypoprothrombinemia. It is also well to point out that prothrombins as low as 60% of normal have been observed without evidence of hemorrhage.

The constancy of hypoprothrombinemia in patients before, during and following attacks of acute coronary occlusions was the basis for the rational of vitamin K therapy in these patients.

Treatment of acute occlusion consisted of complete bed rest, oxygen tent 12 to 15 liters per minute, opiates for pain and sufficient vitamin K to control the

hypoprothrombinemia. In the early years of this work, the oral administration of vitamin K was used almost exclusively. The doses varied from 12 to 20 mg. every 24 hours. During the past five years, the intramuscular and intravenous route has entirely supplanted the oral method. The amount of vitamin K usually given is from 50 to 72 mg. every six to eight hours until the prothrombin reaches 100% of normal.

Satisfactory results from vitamin K therapy are followed by relief of the acute pain within 30 minutes to three hours following the first dose, although at times the patient may complain of some mild discomfort in the chest for 24 hours.

Should sedation be necessary, bromides and chlorals are the drugs of choice. Barbiturates are not permitted because they are known to produce hypoprothrombinemia. Since this has also been proven true of salicylates and mineral oil they too have been avoided. Bed rest is continued for six weeks. On the third day of illness if the patient is symptom-free a general diet is

permitted. Thiamin chloride in 100 mg. doses intramuscularly is given daily throughout the hospital stay. On the seventh week the patient is permitted to be up in the room and by the end of the eighth week to return to work.

In a number of instances, prothrombins of 100% of normal have been encountered on admission although the patient was in a well advanced attack of occlusion. When the determination was repeated six to eight hours later, it was found to be from 30 to 50% below the first reading. Shapiro has also reported a temporary rise in the prothrombin time following thrombus formation. In view of these observations it has been the policy to give 60 to 100 mg. of vitamin K intramuscularly, on admission.

The fact that the pain of acute coronary occlusion was controlled in practically every instance following the administration of vitamin K and remained absent as long as the prothrombin was above 70% of normal emphasizes further the concept of the relation of pain to hemorrhage within the wall of the coronary artery. Of equal interest was the recurrence of pain when there was a return of hypoprothrombinemia. The average patient's pain in this series was controlled by vitamin K when little effect

was observed from morphine. Patients who were given vitamin K on admission rarely required more than one dose of morphine or its allied drugs since the pain was usually relieved in less than four hours.

The rise in pressure following vitamin K therapy in acute coronary occlusion suggests that control of the hemorrhage within the artery wall results in a smaller thrombus formation and in turn less infarction indicates that the amount of myocardial damage is small. The temperature and leukocyte count return to normal usually within 72 hours following their original rise. Convalescence of this entire group of patients has been striking in that after the third day none of them can be classified as sick.

If one compares the mortality rate in the series of 13 cases previously reported which was 38.5%, in which the dose of vitamin K did not exceed 30 mg. in 24 hours, to the much larger doses used in this group in which the mortality rate is 3.6%, these results would appear to be particularly gratifying.

However, one should be very careful in drawing conclusions from these statistics since it is well known that many cases of acute coronary occlusion will recover upon bed rest alone.

"PENICILLIN-RESISTANT GONORRHEA" VS. "NONSPECIFIC URETHRITIS"

By George E. Parkhurst, Fred W. Harb, and George R. Cannefax

Condensed from the Journal of Venereal Disease Information

IN A series of 2,821 cases of male and female gonorrhea, we have not encountered a single instance in which adequate penicillin dosage did not render the patient culturally free of the gonococcus. It is our firm impression that the post penicillin treatment discharges are non-gonococcal, or "nonspecific" infections. Careful and intelligent bacteriologic study of these patients is essential in the evaluation of gonococcal strains suspected of being resistant.

We do not obtain 100% bacteriologic cure with our routine penicillin therapy, i.e., 1 injection of 300,000 units contained in 1 ml. of peanut oil with 4.8% beeswax. A small percentage of our patients require 2 such injections, a day apart; and cases with complications are routinely given 3 daily injections to produce a bacteriologic cure. It is not uncommon to have some of our patients continue having mucoid to purulent discharges. However, with these intensive treatment schedules we have not been able to demonstrate gonococci by culture from the postpenicillin discharges.

The spread method has per-

haps been the basis, in a good many instances, for the mistaken diagnosis of "penicillin-resistant gonorrhea." The use of Gram's stain by the bacteriologist has been of great value in the systematic classification of bacteria and subsequently an aid in the identification of pure cultures. However, the value of Gram's stain is greatly reduced when applied to secretions for diagnostic purposes. Spreads having thick and thin areas are of no value for the diagnosis of gonorrhea. Only the thin portions may be examined microscopically, and these areas may be overdecolorized in an effort to decolorize the entire slide. This results in certain gram-positive organisms losing their stain and appearing, falsely, as gram-negative bacteria. The reliability of the spread method with uniformly thin preparations and in experienced hands is greatest in acute gonorrhea. After the acute stage, when numerous other bacteria appear, the spread method is not reliable.

To the technical peculiarities of Gram's stain, especially when applied to venereal discharges, is added the uncontrollable factor of

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(The Journal of Venereal Disease Information, October, 28: 211-214)

personal interpretation of the microscopic findings. An excellent example of the discrepant results that can be expected with Gram-stained spreads was presented by Van Slyke, Thayer, and Mahoney. The cervical secretions of 664 women were examined culturally by 3 laboratories using 3 different media. At least 1 of 3 cultures was found positive in 140 of the 664 women. Spreads of all these cases were submitted to 3 capable microscopists. Of the 140 culture-positive cases, these examiners reported 88, 47, and 40 positive spreads, respectively. With the 524 culture-negative cases there were 76, 13, and 4 positive spread reports. Results such as these force us to place not too great reliance on Gram-stained spreads for the diagnosis of gonorrhea. Whatever value stained spreads may have as a diagnostic procedure is completely lost if stains other than the Gram stain are used, e.g., methylene blue.

Perhaps the most reliable method for the diagnosis or test of cure of gonorrhea is by culture. Our culture medium is Difco proteose No. 3 agar with 1% Difco hemoglobin and 1% Supplement A added. The cultures are incubated for 48 hours in the presence of 10% carbon dioxide at 35° C. The plates are examined, after spraying with a freshly prepared

1% solution of p-aminodimethylaniline monohydrochloride, for the presence of oxidase-positive colonies. If the oxidase-positive colonies contain gram-negative diplococci, using Hucker's midification of Gram's stain, the organisms are reported as being gonococci. Carbohydrate confirmation for diagnosis is not done with any gram-negative diplococci from oxidase-positive colonies. These organisms would have received a thorough biochemical study had they been subsequently found to be resistant to penicillin therapy.

The bacterial flora of our cases of "nonspecific" urethritis have been found, by culture, to be comprised of various types of organisms: diplococci, staphylococci, streptococci, bacilli, diplobacilli, trichomonads, and diphtheroids. Irrigations with acriflavine, mercurochrome, argyrol, protargol, and potassium permanganate were used in an effort to eliminate the "nonspecific" discharges. Generally speaking, none of these gave satisfactory results in the majority of patients.

Since January 1947, the patients who received penicillin therapy here or elsewhere, and who continued to have a purulent discharge, were re-treated with daily injections of 300,000 units for 2 days. If this increased penicillin dosage did not result in the

cessation of the discharge, the patient received 3 irrigations daily for 2 days of a solution of sodium penicillin containing 1,000 units per milliliter. If the discharge still persisted, the patient was treated with irrigations of streptomycin solution (1:1,000) 3 times daily for 2 days. So far,

other than a few cases of Reiter's disease and of upper urogenital tract infections, we have not had a single case in which the discharge persisted following this routine. The discharge due to Reiter's disease has usually responded satisfactorily to typhoid-vaccine-induced fever therapy.

DMP:RDD



NERVES TO HIP JOINT CUT TO RELIEVE ARTHRITIC PAIN

Relief from pain caused by chronic arthritis of the hip is possible for aged patients who are not strong enough to undergo regular surgery, doctors were told at the Chicago meeting of the American Academy of Orthopedic Surgeons.

This merciful measure results from cutting the major nerves to the hip joint, explained Dr. Benjamin E. Oblatz of Buffalo, N.Y.

The operation can be done on patients of any age for it involves a rather simple procedure, does not produce shock and enables the patient to walk the next day and leave the hospital in one week.

Forty-two patients on the average over 60 years old have received this new surgical treatment since May of 1946, and of these 28 have obtained some degree of relief from pain, Dr. Oblatz stated. While in 14 no beneficial results were noted, there were no complications or ill effects in any of these patients.

This new type of operation was first reported by a Dr. Tavernier of Lyons, France.—*Science News Letter*, February 14, 53:104, 1948.



There is no curing a sick man who believes himself in health.—*Auriel*.

PENICILLIN IN TREATMENT OF NEUROSYPHILIS

By Bernhard Dattner, M. D., Samuel S. Kaufman, M. D.,
and Evan W. Thomas, M. D., New York

Condensed from the Archives of Neurology and Psychiatry

As early as 1924 the observation was made that proper evaluation of the spinal fluid syndrome, with special emphasis on the cell count, enabled to forecast with considerable accuracy the degree of activity of the syphilitic infection in the central nervous system. In spite of these observations, the efficacy of treatment of neurosyphilis continues to be evaluated by some almost entirely on the basis of clinical improvement. We believe that this is a serious mistake. Little or no improvement can be expected in cases of neurosyphilis in which there has been widespread destruction of nerve tissue, as in cases of far advanced tabes dorsalis and dementia paralytica. One should never forget that antisyphilitic treatment is directed solely against the invading spirochetes and has no effect on diseased tissue except to remove the cause of the disease. Damaged nerve tissue may or may not recover function after the removal of the infection, depending on

the degree and site of the damage. Because of this obvious and irrefutable fact, the spinal fluid syndrome affords the best guide to the activity of a syphilitic infection of the central nervous system and to the effect of treatment.

A proper evaluation of the spinal fluid findings requires (1) a cell count, (2) determination of the total protein content, (3) a specific test for syphilis and (4) the colloidal gold test. The cell count affords the most valuable information as to the activity of the syphilitic infection in the central nervous system. A cell count of more than 4 per cubic millimeter is evidence of an active process. This belief is based on our own experience at Bellevue Hospital, where each year we make from 3,000 to 4,000 examinations of the spinal fluid, and on the reports of other investigators in this field. An increase in total protein may indicate activity of the infection, as may the colloidal gold tests. The Wassermann test determines the spe-

cificity of the process.

The purpose of this paper is to report our experience with penicillin in the treatment of neurosyphilis.

To eliminate variables in our experiments, we chose for treatment with penicillin only patients with "active spinal fluids," and all the patients in the series had syphilis of more than two years' duration. The cell counts of the spinal fluids of this series of patients prior to treatment with penicillin varied from a maximum of 1,540 cells to a minimum of 16 per 3 cu. mm. In our experience we have encountered few, if any, untreated patients with active neurosyphilis who had normal cell counts of the spinal fluid.

We used penicillin exclusively and administered it to all patients intramuscularly in individual doses dissolved in water at three-hour intervals.

For the past ten months we have adopted a schedule calling for individual injections of 40,000 units of penicillin every three hours for one hundred and fifty doses, making a total of 6,000,000 units for all patients with "active spinal fluids," regardless of the symptoms and signs. In our experience, it is not true that pa-

tients with late asymptomatic neurosyphilis require less treatment than patients with other forms of neurosyphilis.

One hundred and fifty-one patients treated with penicillin were followed with clinical examinations and studies of the spinal fluid for six months or more after treatment. The longest period of observation was 28 months. We chose six months as the minimum period of observation because with malaria therapy we found that less than 2 per cent of the patients with normal cell counts of the spinal fluid six months after treatment relapsed at a later period. The percentage of relapses after six months of follow-up observation among patients treated with smaller amounts of penicillin was slightly higher than that after malaria therapy. Consequently, in reporting on patients observed for only six months after treatment, we recognize the possibility that some of them may relapse at a later period.

In tabulating statistics, we included among patients considered to show a satisfactory response all those who had normal cell counts of the spinal fluid and satisfactory improvement in other spinal fluid

findings, i.e., definite decreases in titer in complement fixation tests and in the total protein values, as well as improvement in the colloidal gold curves. All but 8 of the patients included in the group showing satisfactory response to treatment had transitional abnormalities in the spinal fluid in that the reactions to the complement fixation tests and the colloidal gold tests were still abnormal. The spinal fluids of the 8 exceptional patients became completely normal between nine and

twenty-four months after treatment. For some of the patients with transitional abnormalities of the spinal fluid the total protein is not entirely normal at the time of writing.

Among the patients representing therapeutic failures after the original course of penicillin therapy were included all those who did not have a normal cell count of the spinal fluid six months after therapy or who relapsed at some later period.

Table I gives the present status of 151 patients, including the results of treatment.

TABLE I—*Present Status of One Hundred and Fifty-One Patients Treated for Neurosyphilis, Including Those Retreated*

Diagnosis	Total No. of Patients	Satisfactory	Indefinite	Failure
Asymptomatic neurosyphilis	23	19	3	1
Meningovascular syphilis	35	29	4	2
Tabes dorsalis	41	37	3	1
Dementia paralytica	33	31	2	0
Tabetic form of dementia paralytica	19	19	0	0
Total	151	135	12	4
		(90%)	(7%)	(3%)

In addition to the patients whose response to the first course of penicillin was regarded as an unquestionable failure, 6 patients with normal cell counts six months after the original course of penicillin therapy were treated again because of our desire to see whether further clinical improvement could be achieved

with additional penicillin therapy. The results of treatment of these patients did not convince us that additional treatment with penicillin resulted in further improvement of function.

Among the patients giving satisfactory responses were 3 with dementia paralytica whom we had previously

given malaria treatment and large amounts of chemotherapy, including trivalent and pentavalent arsenical drugs and bismuth preparations with reducing the cell count of the spinal fluid to normal. Their spinal fluid findings improved satisfactorily after penicillin therapy, and all have now been under observation for more than a year after penicillin was given.

Thus, in our experience penicillin has proved to be a sur-

prisingly effective therapeutic weapon in cases of neurosyphilis. Not only has it proved to be as effective as malaria, in our experience, but it also has the great advantage of being much less dangerous to the patient. Clinical improvement in all groups, including the patients with dementia paralytica, has compared favorably with that following malaria therapy, and we believe that penicillin will ultimately replace fever therapy.

SBH:KOE



MARGARINE AND GROWTH

Children grow as well on margarine as on butter. Drs. Harry Leichinger, George Eisenberg and Anton J. Carlson of Chicago report in the *Journal of the American Medical Association* (Feb. 7).

The report, from the University of Illinois, College of Medicine, Department of Pediatrics, is of a study aided by a grant from the National Association of Margarine Manufacturers. Terms of the grant provided that findings of the study could be published regardless of results.

Unlike most studies of the relative merits of butter and margarine, human children instead of laboratory rats were the subjects.

The children ranged in age from three to 17 years and were orphans or half-orphans living in two different institutions. Those in one institution got only margarine, from vegetable fats and fortified with vitamin A, to spread on bread, and as the fat used on vegetables, in pastry and for frying. Butter was the only fat used for these purposes in the other institution.—*Science News Letter*, February 14, 53:108, 1948.

THE ROLE OF HORMONES IN STERILITY

By Martin B. Goodwin, B. S. A.

Condensed from the McGill Medical Journal

WE PRESENT a review of the commoner endocrine disturbances in male and female which may cause sterility, and for which replacement therapy is available.

Siegler's classification of impaired fertility seems to us to be the most satisfactory: absolute sterility, a condition in which there is no conceptive capacity; relative sterility, a condition in which mating may take place, although unlikely until precluding factors in either mate are overcome; and relative fertility, a condition in which mating does take place, but the conceptive capacity is diminished.

Before endocrine therapy is begun, an attempt must be made to rule out nutritional factors and anatomic deficiencies. Semen analysis, the Huhner test, the Rubin test, and hystero-graphy are of great value in diagnosis.

FEMALE FACTORS. Thyroid and ovarian disturbances frequently occur together, but sterility may result from hypothyroidism alone. The low B. M. R. causes a low level of follicul-

oids and luteoids (Selye's nomenclature) with resultant disturbance of the menstrual cycle and endometrial development. The therapy for these cases consists of bringing the B. M. R. back to normal.

Hypothyroidism occurs in half the cases of ovulatory failure. Gonadotrophic failure (anterior pituitary) or intrinsic and intercurrent disturbances in ovarian function are found in the other half. The treatment of gonadotrophic failure is carried out as follows: The menstrual cycle is regulated by estrogenic therapy for about three cycles, followed by estrogen-progestin therapy for three more cycles, after which an endometrial biopsy is taken. If this shows a progestational endometrium, essentially normal ovarian function has been initiated. If, however, the endometrium does not show progestational changes, gonadotrophin therapy is started five days after the test. The patient receives daily intramuscular injections of 400 I. U. of equine gonadotrophin from the fifth to the

fourteenth day of the cycle, and daily injections of 500 I. U. of chorionic gonadotrophin from the fifteenth to the twenty-fourth days. If biopsy does not show response, a cycle is allowed to elapse and another series of injections in higher dosage is given. If response occurs, a trial of pregnancy is made.

Pregnancies from the above therapy are in danger of abortion, and so estrogen-progestin treatment must be given as in the treatment of recurrent abortion.

The biopsy is used as an indication of ovulation. If the endometrium shows progestational changes just before menstruation, it is assumed that ovulation has taken place. Bringing about ovulation appears to be the main difficulty.

Another type of pituitary insufficiency which must be considered is that in which ovulation does take place and progestational endometrium does develop. In this case, however, the premenstrual phase of the cycle is too short to allow for the proper establishment of the ovum in the endometrium and thereby prevent the next menstrual flow. Injections of A. P. L. towards the end of the cycle should prove to be adequate therapy.

Female patients who have a definite lack of development of secondary sex characteristics, but who have adequate amounts of F. S. H. in the urine, do not respond to gonadotrophin therapy, since the ovaries in these patients are refractory to any sort of stimulation. This group may be divided into those in which ovulation takes place but folliculoid secretion is lacking, and into those in whom there is an intrinsic lack of development of the Graafian follicle. In the former case, replacement therapy with estrogen followed by estrogen plus progesterone given in proper time sequence, should prove adequate. In the latter case there is no possibility of pregnancy, and estrogen therapy is used only to overcome the stigmata of ovarian hypoplasia.

Often a specific differential diagnosis cannot be made. For this reason, combined therapy may prove more successful than any individual replacement therapy. According to Siegler, estrogens are useful in raising the fertility index when used in combination with gonadotropins. In small doses estrogens exert a stimulating effect on the anterior pituitary, and an increased production of luteinizing hor-

mone results. In such instances, small doses of thyroid are also given.

MALE FACTORS. In cases with hypoplastic male accessory glands, androgen therapy may be beneficial. Assuming spermatogenesis to be taking place, such therapy would insure proper function of the accessory glands and thus preserve the spermatozoa.

Hypothyroidism may cause semen inadequacy. In such a

case, thyroid therapy is indicated.

Endocrine therapy has not proved to be very satisfactory in cases of deficient secretion of the testis and anterior pituitary. There is no effective hormonal treatment for cases of advanced degeneration of spermatogenic tissue; responses are variable and unpredictable. Androgens and estrogens definitely depress spermatogenesis.

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CBL:HJP



CANCER RESEARCH GRANTS

A million and a half dollars—the largest grant of Public Health Service funds ever to be given at one time—was awarded recently to a total of 64 colleges, research laboratories, and public health institutions throughout the country by the National Advisory Cancer Council of the National Cancer Institute, in Bethesda, Maryland.

In addition to nearly \$750,000 in *research* grants, in final session the Council awarded 26 medical schools \$593,130 for the improvement of cancer teaching; action on 12 requests from dental schools for the teaching of diagnosis of oral cancer was postponed. Grants totaling \$132,645 for cancer control projects ranged from \$7,670 given to the University of Tennessee College of Medicine, in Memphis, for a cancer tissue diagnosis service and tumor registry, to \$30,000 to Memorial Hospital in New York City for cancer pathology and medical training. Memorial Hospital also received more than \$100,000 for a total of five research projects, constituting the largest research grant given a single institution by the Council.—*Release, U. S. P. H. S., Washington, D. C.*

PRURITUS ANI: A BIOCHEMOPHYSIOLOGIC ENTITY

By Harry E. Bacon, M.D., and Clifford E. Hardwick, M.D.

Condensed from the Journal of the Medical Society of New Jersey

CERTAIN physiologic and biochemical factors concerned with pruritus ani will be presented in this article in an attempt to establish the therapy of this condition on a rationale basis.

PHYSIOLOGIC. There are two types of sweat glands in the perianal skin, the eccrine or ordinary type, and the apocrine. The latter are found only where hair exists being situated deeply in the dermis. They begin to function at sexual maturity producing an excretion which has a higher pH than ordinary perspiration (eccrine type). Their composition of protein, carbohydrate and fat are similar to that of the eccrine glands except that the amounts of each component are larger and they lead in the production of cholesterol. This type of secretion existing between folds of the skin furnishes ideal culture media for many organisms. The excess carbohydrate normally present in the apocrine glands excretion may be increased by a diet high in starches and sweets.

BIOCHEMICAL. The changes present in pruritus ani are those of a chemical dermatitis. Normally the pit of the rectal mucosa

is 7-8. In pruritus ani a much more alkaline reaction has been noted in the majority of patients. This alkalinity appears to be related to a change in the bacterial flora of the lower intestinal tract.

In addition to an actual alteration in the type of bacteria in the large bowel putrefaction products such as indole and skatole may appear. It has been demonstrated that cutaneous changes can be produced by the injection of skatole which closely simulate those present in true pruritus ani.

TREATMENT. The form of treatment employed on our service follows:

1. The taking of a careful history, especial attention being paid to the deletion of extraneous etiologic factors.

2. A detailed proctologic examination.

3. Laboratory examinations such as urinalysis, cultures for fungi and other pathologic organisms; examination of the stool for parasites; scrapings taken from the anal skin for making cultures and an estimation of the pH of the rectal mucosa.

We routinely advise removal

of the existing anorectal pathology early in treatment, as this aids in the restoration of normal physiology. Parasites and fungus infection in the colon and rectum are appropriately dealt with.

Since early 1946, we have been using a medical routine aimed at reducing the pH of the rectal mucosa. This includes an acid-ash diet, glutasin capsules (a form of glutanic acid hydrochloride in combination with pepsin). Gelatin suppositories containing beta-lactose, may be dispensed by any pharmacist. The diet of itself reduces the pH, the glutasin acting as hydrochloric acid when administered orally, aiding in this process. The lactose suppositories tend to prevent the seepage of rectal discharges of a high pH from leaking out during the night.

Local care of the pruritic zone is of paramount importance. Following the evacuations we advise the use of cotton pledgets or "kleenex," using a boric saturated solution so as to remove

any secretions that have accumulated. The area is kept thoroughly dry with boric powder applied on a small piece of cotton which is changed frequently. Mercurochrome is applied to the region each day. We advise against soaps or ordinary toilet paper due to their irritating and traumatizing factors. The frequent association of fungus infection with pruritus must be constantly borne in mind and appropriate local treatment carried out to retard their growth.

Improvement, both symptomatically and pathologically, is evident following the judicious use of the regime above outlined. Many patients are symptom-free in a few days; others may require weeks of persistent treatment which is to be expected especially in the well established cases. Many recurrences and failures are due, unfortunately, to the omission by patients of faithfully carrying out the instructions given them in the manner prescribed.

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DMP: RDD



¶ An honest man speaks the truth, *though* it may give offence; a vain man, *in order that* it may.—*Wm. Hazlitt.*

GASTRECTOMY

By Sir Heneage Ogilvie, K.B.E., D.M., M.Ch. Oxf., F.R.C.S.

Condensed from the Lancet

THREE patients were seen whose gastrectomies had been a failure from within a few weeks of their performance; so when a fourth presented herself from the same source the opportunity was taken to learn the secret.

The patient, 48 years of age, had a gastrectomy done after 2 year's duodenal pain. She was well 6 months postoperatively, but then her pain returned, now on the left side rather than the right, and became steadily worse.

Laparotomy disclosed a large posterior gastrojejunal ulcer eroding the body of the pancreas.

That something wrong would be found to explain this early disaster was expected. The stomach had been cut distally 2 in. above the pylorus, and the pyloric antrum with its mucous membrane had been left in situ. Proximally a very small amount of the stomach had been removed—a sort of ceremonial gastric circumcision. The remaining stomach had been narrowed before anastomosis by Hofmeister's procedure, but no valve had been formed, resulting in a double-barrelled loop of jejunum with 2 stomata. The anastomosis had been placed anterior to the colon.

The miserable results of exclusion gastrectomy—i. e., removal of part of the stomach, leaving the pyloric end—can be explained only by the action of the antral secretory hormone. In normal digestion this hormone ensures the continued secretion of gastric juice after the meal is finished and the appetite sated, and while food remains in the stomach requiring digestion. After gastrectomy the food usually leaves the stomach within 20 minutes after it is eaten. If the pylorus has been removed, only the vagal mechanism of acid secretion remains, and the flow ceases as soon as the meal is finished; but if the pyloric antrum has been left a second wave of acid arrives later and pours onto an unprotected stoma and into an empty jejunum. In normal digestion this hormone is evoked by the products of digestion in the antrum; after gastrectomy the antrum is (or should be—it was not in this case) out of the digestive channel and therefore unlikely to be reached by peptones; but bile, peristaltic movements, and the circulatory surge of digestion can still act on it. That the hormone

is produced is the only likely explanation of the fact that the retention of this cuff of mucous membrane will produce recurrent ulceration.

Condemnation of the exclusion operation does not mean that every scarred and adherent duodenum must be resected. If the duodenum cannot be dissected safely beyond the ulcerated zone to a distance that allows double infolding of healthy tissues, the pyloric mucous membrane may be excised to the pyloric ring, and the muscular and peritoneal coats of the prepyloric inch closed over the sutured stump or it may be done as a temporary expedient to allow the duodenal ulcer to heal and the edema to disappear. A month later the remaining stump can be excised and the duodenum closed without difficulty.

Most surgeons agree that, besides the pyloric antrum, at least $\frac{2}{3}$ or $\frac{3}{4}$ of the remainder of the stomach should be removed. A high resection destroys a volume of secretory tissue since the lining of the whole stomach except the pyloric antrum consists of a surface layer of mucus-secreting cells on which open the mouths of deep specific glands that secrete pepsin and hydrochloric acid.

Hofmeister tried to simplify the Billroth II operation, now

known as the Polya gastrectomy, by closing part of the cut surface of the stomach adjacent to the lesser curvature, in order to make a smaller stoma but never suggested a valve or recommended anything remotely resembling the operation that is referred to today as the Hofmeister gastrectomy. The Hofmeister operation, as illustrated in Orr's *Operations of General Surgery*, failed because it tended to produce the result shown in this case, a narrow jejunal loop hanging from a small stoma like a stocking from a clothes-line; food flows equally down both loops but tends to enter the afferent one which is already full of secretion, and finally obstructs the efferent one.

Antecolic gastrojejunal anastomosis is a satisfactory operation when the lesser curve has been divided 3 in. or more below the cardia, and in palliative gastrectomy for cancer where the paraaortic glands are involved because it interposes the colon and mesocolon between the stoma and site of recurrence. When a radical removal of the stomach has been performed, an anterior anastomosis lies uneasily across a colon that is intermittently distended with gas and feces. When the gastrectomy is radical and valvular, an anterior anastomosis is incompatible with the proper routing of the afferent

jejunal loop. A jejunal loop brought in front of the colon and sutured in a valvular manner to a stomach that has been divided high on the lesser curvature is tight and angulated at the proximal end when the stoma has been allowed to fall into its normal position in the abdomen. Angulation following a posterior valvular anastomosis by the Finsterer technic is not harmful if it does not obstruct the flow of bile and pancreatic juice from the proximal loop, but tension may lead to necrosis and perforation at the suture line.

There is no standard gastrectomy; but a gastrectomy for ulcer must satisfy 3 requirements: (1) it must reduce the

production of acid to a safe level and restrict its flow to the time when food is in the stomach; (2) it must ensure a certain period of gastric digestion and not throw food straight from the esophagus into the small intestine; and (3) it must direct the outflow from the stomach in an onward direction only. These requirements are satisfied by the Shoemaker type of Billroth I gastrectomy with an end-to-end gastroduodenal anastomosis by the high posterior Finsterer-Lake-Lahey modification of the Miculicz-Kronlein - Hofmeister - Reichel - Polya improvement of the Billroth II gastrectomy with a large valve and a small stoma.

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LKF:CHS



PHOTOGRAPHY IN SCIENCE

The Second Annual International Photography-in-Science Salon will be an important feature of the Centennial of the American Association for the Advancement of Science. During the Washington Meeting of the AAAS (September 13-17), the prize-winning and other accepted entries in the contest will be on exhibition in the Natural History Building, U. S. National Museum.

The Centennial Celebration will be attended by thousands of scientists from all parts of the country—there were more than 8,000 at the Chicago Meeting last December. In view, therefore, of the widespread interest in both photography and science, we hope that you will submit entries in this competition yourself and that you will also encourage your friends and the members of your staff to do so. Membership in the AAAS is NOT a requirement, and there is no entry fee.

Inquiries about the Second Photography-in-Science Salon and requests for entry blanks should be addressed to The Editor, The Scientific Monthly, 1515 Massachusetts Ave., N. W., Washington 5, D. C.—Release AAAS, Washington 5, D. C.

THE MANAGEMENT OF HYPERTENSION

By Paul D. White, M.D., Boston, Mass.

Condensed from the Annals of Internal Medicine

THE most important consideration in the treatment of hypertension concerns the education of the patient. There are those who believe that it is wisest to conceal from the patient the fact that there is hypertension or at least to hide its severity. I have found it more satisfactory in most instances however to keep my patients informed about the general status of their pressure but with detailed discussion as to its variability and the relative unimportance of the actual figures on any one occasion.

The next consideration is that of the way of life and the regimen to be advised. This will, of course, vary greatly from slight restrictions only, to complete rest for extreme hypertension with threatened failure of heart, brain, or kidneys. In general, it is still found helpful to establish a program of leisure and to insist on frequent rests or vacations. The hours of work and the intensity of work should both be reduced; it may be necessary, for example, to advise doing 2 to 4 hours of work daily in 4 to 8 hours, instead of what is so common to these individuals, namely, crowding 24 hours

into 12 or 16 every day.

A pleasant prescription of ancient vintage is to order a 3 or 4 weeks' stay at the baths somewhere twice a year. Thus at some delightful spot in the country with well regulated diet, rest, exercise, and baths many thousands of patients with hypertension have, doubtless for centuries, kept their pressure under fair control and may very well have avoided the need of more radical measures now in vogue. A minor but definite factor is the hydrotherapy itself: the myriad little bubbles of the CO₂ baths can relax the patient and reduce the blood pressure for the time being.

Physiotherapy of other types at these bath resorts or at home can be another weapon favoring relaxation. Probably the best of such measures is mild exercise, unhurried and enjoyed. If a patient can be made to see the value of relaxation early in his or her hypertension it is quite possible that the evolution of the disease can be altered, although it is as yet difficult to speak with certainty because of the lack of well controlled studies along this line.

In addition to relaxation and physiotherapy, it is obvious that sedation and sleep are important since in our hypertensive work-up studies we often obtain absolutely normal blood pressure readings during deep sleep (from amytal) in severely hypertensive patients. It should be possible to advise 9 or 10 hours in bed every night and an hour's rest in the middle of the day before or after luncheon.

There are a few habits to be mentioned briefly. Smoking tobacco usually constricts the peripheral arterioles and sends the blood pressure up, even as much as 20 mm. or more. Since that generally happens and since it seems rather silly to maintain a higher pressure by smoking, I advise my hypertensive patients to omit tobacco for good; half way measures are usually inadequate. On occasion however I have carried out pressor tests with tobacco and in rare cases there does seem to be very little or no effect. Coffee and tea can be similarly tested, though as a rule they seem to have no harmful effect. The same is true of alcohol except in excess; as a matter of fact alcoholic drinks may have a favorable or sedative effect.

I have emphasized these old and recognized measures of treatment for two reasons. In the

first place, it is quite possible that some hyperreactors may be kept from becoming hypertensives by early heed to these things, and secondly, in the course of the current interest in radical measures of treatment, surgical and dietetic, there can easily be a neglect of these simpler measures, which though perhaps not curative can be helpful, especially when the radical measures may have failed or may have been only partially successful.

Now I shall speak of four measures which are at present creating a good deal of interest. The first of these is psychotherapy. To quote my friend, Carl Binger: "The problem is that of treating a severe character neurosis in which anxiety, depression and suppressed aggression are the cardinal psychopathological features. The method of choice will vary from cheerful neglect to deep psychologic exploration. There is as yet no evidence that psychoanalysis or any other psychotherapeutic procedure can reverse the physiologic process or change the destiny of this disease—be it benign or malignant. It is probable that we can do more by way of prevention than cure. There is, however, evidence that a correlation exists between levels of pressure and emotional disturb-

ance and that suitable psychotherapy can ameliorate some symptoms, such as, headache, fatigue, palpitation, dizziness, shortness of breath and the fear which these engender."

Next let us consider diets and medicines. One of the most useful of all the diets has been that of low caloric value for the simple reduction of weight. It has long been known that the reduction of weight and the reduction of blood pressure in obese hypertensive patients often go hand in hand, and as an effective and helpful though infrequently curative measure, a reduction diet stands high.

During the past few years there has been a revival of the interest of the dietary treatment of hypertension, with strict quantitative limitation of salt and protein. To give you the latest news from centers where such diets are being studied, I shall quote from telegrams received but a few days ago. Harrison: "Drastic sodium restriction of little or no value in severe hypertension or in older patients. Will lower blood pressure in many young subjects. Restriction must be so drastic that diet is rather impractical except for experimental use." Cocoran and Taylor: "In our experience no specific effect of rice. Correction of obesity definitely effec-

tive."

Dr. Kempner of Duke University has had considerable experience during the past 4 or 5 years with a strict rice diet and has reported success in a good many cases. He introduced this diet in the treatment of patients with renal disease and insufficiency because of its low protein and low sodium content and of the easily assimilated protein in the rice itself. The diet consists of rice, white or brown, boiled carefully for 20 minutes, served hot and relatively dry, 8 ounces or thereabouts a day in three courses, with fresh or frozen fruits of nearly all kinds, and sugar more or less ad lib, to bring the total calories to 2,000 or a bit more. Between meals one may munch on a rice-brittle candy. No meat, vegetables, milk, or salt is allowed for the first 6 weeks or so and then the diet may be gradually liberalized with two potatoes and a few ounces of meat weekly. Later if the blood pressure stays down, one-third of the fruit is replaced by vegetables and more meat is given.

There are only 20 Gm. of protein and far less than a Gm. of salt in this initial diet daily, and yet in many patients such limitation after they become accustomed to it and if they are willing to stick it out does not seem to cause any particular

hardship, and light or even average work can be resumed without trouble. It is reported that about two-thirds of those hypertensive patients who are willing to give this diet a fair trial are distinctly helped by it subjectively and is blood pressure levels, and in some cases cardiac enlargement and eyeground abnormalities decrease or clear away and the electrocardiogram improves. Thus hypertensive heart disease has been proved to be reversible by the rice diet as well as by lumbodorsal sympathectomy. I saw patients who had achieved a normal blood pressure by this therapy who had failed by other procedures, and it seems fair to me to suggest to some individuals, especially to those who are obviously unsuited for surgery, to try this diet.

Now let us turn to drug therapy. The medicines that have been used most for many years are the sedatives and the nitrites. We cannot, of course, maintain sedation heavy enough in most cases to keep the blood pressure of hypertensive patients at a normal level but even the smaller doses, e. g. $\frac{1}{4}$ to $\frac{1}{2}$ grain of phenobarbital 3 or 4 times a day, do help some. Papaverine as an antispasmodic has been disappointing. The nitrites do lower the pressure but as a rule too transiently or mildly in hyper-

tension to make them worth while, and effective doses are likely to give headaches.

The drug that has been periodically most popular during the past 20 years and which does lower the blood pressure somewhat in some cases is potassium thiocyanate. It is, however, often disappointing and in more effective dosage can be quite toxic.

Many other medicines for hypertension in the past have come and gone. None has been widely and permanently adopted although perhaps some should be subjected to more careful and critical pharmacologic testing. Included among these drugs are garlic, pumpkin seed, watermelon seed, sunflower seed, mistletoe, veratrum viride, potassium iodide, theobromine and theophylline, benzyl benzoate, renal and other tissue or organ extracts, vitamins, and endocrine preparations, including the sex hormones.

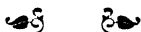
Finally, we come to the newest of the drugs being tried in hypertension today, including tetraethyl ammonium salts and priscol. These chemicals have a physiologically sympathetomizing effect and eventually one may be found that will bring the blood pressure down to normal for a long enough period without important and disturbing by-

effects to be introduced for routine periodic use. As yet nothing adequate has been found and the testing must still be regarded as in the experimental stage.

Last but not least among the therapeutic procedures for hypertension is the surgical measure of sympathectomy. Other surgery such as renal decortication and unilateral nephrectomy has not relieved essential hypertension itself. Sympathectomy however has been life-saving in a considerable number of my patients. It has made me realize the not infrequent reversibility of heart

disease. Sometimes hypertensive patients will spontaneously lose their hypertension in the course of years, but my observation of cases subjected to lumbodorsal sympathectomy or perhaps to the rice diet too has been a new experience for final judgment. It is to be hoped that something easier than either sympathectomy or the rice diet may be found in the near future to control the devastating effect of hypertension which still remains in this country and in the world at large one of the chief causes of disability and death.

LBL:LBL



NEW CANCER JOURNAL SPONSORED BY THE AMERICAN CANCER SOCIETY

A new journal, *CANCER*, sponsored by the American Cancer Society, will make its initial appearance this Spring, it was announced recently. Every phase of the cancer problem will be covered, with major emphasis on clinical aspects. Doctor Fred W. Stewart, of Memorial Hospital, N. Y., will be the Editor-in-Chief, assisted by an Editorial Advisory Board of 50 authorities. In addition to original papers, the journal will publish bibliography of the world's cancer literature as well as comprehensive abstracts of the most significant articles. Original papers should be submitted for consideration to the Editor, Doctor Fred W. Stewart, 444 East 68th Street, New York 21, New York. *CANCER* will be published bimonthly, at Eight Dollars per year, by Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers.

HOLT'S DIPHTHERIA TOXOID (P.T.A.P.)

By Guy Bousfield, M. D.

Condensed from the Lancet

THIS article reports the results of my study of Holt's purified diphtheria toxoid, aluminum - precipitated (PTAP), in regard to its aluminum phosphate content, ageing, purity, and durability of immunity. The subjects were Schick-positive children aged one year.

The optimal aluminum phosphate content in toxoid was found to be 15 mg. per ml. (or 7.5 mg. per dose, as the average dose was 0.5 ml.). Tests performed 28 days after a single injection showed a Schick-conversion rate of 97.7%. No severe local reactions resulted.

Better results were obtained from samples of PTAP which have been stored for some weeks before use. This toxoid improves even when it is stored at room temperatures. PTAP will stand a considerable amount of casual treatment. For a freshly-prepared solution, the concentration of aluminum phosphate should be 13-15 mg. per ml.

The use of a pure toxoid (98% pure in terms of protein) does not damage the antigenic

properties of the substances. A Schick-conversion rate of 96.1% was found when such a pure preparation was used.

Since about 10% of children will show some refractoriness after a single injection of toxoid, I feel that everything possible should be done to protect this group. The more effective and powerful the primary stimulus, the better will be the chance of permanent basal immunity being produced by a second inoculation.

I have found that the immunity conferred by only minute doses of PTAP—3 Lf units per dose—is well maintained at the end of 2 years. With normal doses of 15 Lf units, the antigen will give a very high degree of permanent basal immunity. Other factors also are important: Those antigens showing the best Schick conversion-rate from the primary stimulus produce good durability of immunity, the best being when 606 a prophylactic is used containing an adequate amount of mineral carrier.

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(Lancet, December 13, 2: 867-870)

JPS: HBJ

NEUROSYPHILIS: TREATMENT WITH PENICILLIN ALONE AND WITH A COMBINATION OF PENICILLIN AND MALARIA

By Arthur C. Curtis, M. D., Robert E. Burns, M. D.,
and Dorothy H. Norton, M. A., Ann Arbor, Mich.

Condensed from the American Journal of Syphilis, Gonorrhea and Venereal Diseases

ONE HUNDRED AND EIGHTEEN patients treated for some form of central nervous system syphilis, and observed for a minimum of one year, subsequent to treatment, comprise the basis for this analysis.

Of the 118 cases reviewed, 75 received penicillin alone and 43 received penicillin plus malaria. Commercial penicillin of mixed species was employed throughout. With few exceptions penicillin was administered in equally divided doses of 40,000 units each, and given intramuscularly in aqueous solution every three hours for 100 injections. When the combined therapy was utilized each patient underwent at least 50 hours of fever with temperatures of 103° F. or above. The number of febrile paroxysms varied from 8 to 12. At the onset of the first malarial chill, penicillin therapy was instituted and continued as outlined without regard for the regularity of the febrile responses. No tendency of penicillin to produce an un-

toward effect on the course of the malaria was noted. Since penicillin is known to be more effective in vitro between 98.6° F. and 107.6° F., its use in vivo under such conditions would appear to be strongly advisable.

CENTRAL NERVOUS SYSTEM SYPHILIS—ALL TYPES. The penicillin plus malaria group shows 74% clinical and 81% spinal fluid improvement following treatment. Those receiving penicillin alone attained 51% clinical and 62% spinal fluid improvement. Thus a clinical superiority of 23% and a laboratory superiority of 19% is apparent when the combined method rather than the penicillin treatment alone is utilized. These findings are of even more significance if it is remembered that those patients with the more severe involvement, and therefore, with the greater tendency to progress, received the combined treatment.

With few exceptions, clinical remission has been accom-

panied by coincident improvement of the spinal fluid. It has been determined that the initial benefit following penicillin therapy is manifested by an early drop in the cell count. No essential difference in this respect between the response of those who received malaria and penicillin and of those who received penicillin alone is seen.

Cases treated with penicillin and malaria have shown a rapid fall in the colloidal gold curve compared to those cases receiving only penicillin, despite the fact that at the institution of treatment they were, as a group, the more severe cases and showed for the most part first zone curves.

A gradual fall in titre of the spinal fluid Kahn test was noted. After three months the average number of quantitative units is much the same with either method of treatment. Again the superiority of the combined method is demonstrated, for at the time when treatment was administered this group of patients had a significantly higher average titer.

GENERAL PARESIS AND TABOPARESIS. Fifty-seven per cent of those cases of paresis (including taboparesis) for whom

penicillin was used, showed clinical improvement by the end of the first year following treatment. Sixty-four per cent of those who received both malaria and penicillin improved in the same period of time. Forty-three per cent of the former group and 36% of the latter were unchanged or worse. The laboratory examination of the spinal fluid of 70% of the patients treated with penicillin, and 71% of those treated with malaria and penicillin showed improvements during this time. If it is appreciated that the patients receiving combined penicillin and malaria therapy were a much more deteriorated group and at the end of a year both their clinical and spinal fluid improvement was at least as good as a less deteriorated series, the combined therapy seems to have been better than penicillin alone.

Penicillin alone produced much the same improvement rate (57%) in one year as malaria alone in three years. The next two years will tell a more authentic story since within that time it is possible that a number of patients will deteriorate whose disease today is apparently arrested. It may be hoped that the results follow-

ing the use of penicillin alone will continue to equal those treated with malaria therapy, thus providing a relatively safe method of treatment for those in whom malaria is even remotely contraindicated. It is believed by us that the "half course" of fever therapy plus penicillin warrants further investigation. It may offer at least some of the benefits of fever plus penicillin to those for whom a febrile course of fifty hours of ten paroxysms is contraindicated.

TABES DORSALIS. Thirty-two patients with tabes dorsalis were treated. This does not include those in whom tabes was associated with paresis. In all cases, whether penicillin was used alone or in conjunction with malaria, the cerebrospinal fluid was either unchanged or improved by treatment. Nine patients received both penicillin and malaria. Six derived symptomatic improvement from treatment and one remained unchanged. Twenty-three patients received penicillin alone and, in all cases, the spinal fluid was improved by treatment. Thirteen patients attained symptomatic improvement.

In this small series of cases and over such a short period

of time no definite conclusions can be drawn. The impression gained after following these patients for one year was that little difference exists between the two methods. If this opinion is true it would seem that the treatment of choice for uncomplicated tabes dorsalis would be penicillin only.

PRIMARY OPTIC ATROPHY. Fifteen patients with a diagnosis of primary optic atrophy were treated by one or the other method. Of the 15 patients, 8 have been followed for a minimum period of one year. Four of these eight received malaria and penicillin, and four penicillin alone. None of the eight became worse in the one year following treatment. Three were unchanged in any respect. Four had slight symptomatic improvement, but of these there was no objective change in the visual fields. Further studies in the use of penicillin alone for the treatment of primary optic atrophy are indicated, especially for those patients who cannot tolerate malaria therapy. A long careful period of observation of five to ten years must elapse before any final conclusions can be made.

Upon the basis of these as well as other studies, it ap-

pears that the combination of penicillin and malaria is today the preferred type of therapy for paresis and taboparesis. It seems logical that a combination of a highly effective spirocheticidal agent with fever should be the more desirable procedure. This is even more

reasonable when it is known that penicillin in vitro is more effective at higher temperatures. The value of fever is well established, and prior to penicillin therapy, it was the prime therapeutic procedure in paresis and taboparesis.

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SBH:KOE



TULAREMIA TREATED WITH STREPTOMYCIN

Favorable effects of streptomycin in the treatment of 5 patients with tularemia are reported. In each case, the handling of wild rabbits was the source of infection. The streptomycin, dissolved in normal saline, was given intramuscularly every 3 hours. In 2 cases the daily dose was 400 mg. In the other cases 800 mg. per day were administered.

Systemic manifestations of the disease were promptly controlled, and the primary ulcer healed in less than half the usual time.

Lymphadenopathy subsided promptly in a patient treated early, but progressed to suppuration in another treated late.

Neither intramuscular nor intraglandular injection of streptomycin in a patient with a suppurating node could obviate the need for adequate surgical drainage.

Streptomycin therapy does not alter the immunity response, since agglutination titers tend to rise as in untreated cases.—*John B. Johnson, M. D., Charles B. Wilkinson, M. D., and Edmundo Figueras, M. D., American Journal of American Sciences, December, 214:645-650, 1947.*

KAE:KOE



By losing present time we lose all time.—
W. G. Genham

ANESTHESIA FOR THE AGED

By John B. Dillon, M. D.

Condensed from the Journal of the American Medical Association

THE increase in the average life expectancy from 50 years in 1900 to 66 years at the present time has resulted in a marked increase in the amount of surgical treatment given persons of advanced years.

Our experience has been that morphine may depress patients in this age group out of all proportion to its expected effect, and that it is generally unpredictable. It has therefore been almost completely eliminated as a premedicating drug for the aged. Meperidine hydrochloride in 25 to 50 mg. doses has proved satisfactory in the majority of cases. Codeine, 0.015 to 0.03 Gm., has also been useful. Opiates can safely be eliminated in many cases in which movement of the patient does not result in pain.

Barbiturates also depress the aged patient and must be used with caution. If the patient is not apprehensive, and many patients in this age group are not, the use of barbiturates, particularly if an opiate has been ordered, may well be eliminated. Phenobarbital sodi-

um 0.014 to 0.05 Gm., has been found to be the most satisfactory.

The choice of anesthetic method and agent for the aged patient must be based on an understanding of the alteration in anatomy and physiology peculiar to age as well as an evaluation of the individual patient. The circulatory system has lost many of its compensatory mechanisms through arteriosclerosis and degeneration. It is generally true that the respiratory system shows some degree of emphysema with loss of vital capacity and impairment of alveolar exchange. Hepatic and renal tissues have undergone variable amounts of degeneration with lowered function and reserve.

INHALATION ANESTHESIA. This method was used for all thoracic operations and operations on the upper part of the abdomen, as well as in any case in which there was any question that the patient would be difficult to keep in physiologic equilibrium with any other method. In 50% of the instances of inhalation an-

esthesia the endotracheal technic was used. Among the advantages coincident with this technic as applied to the aged patient are: (1) a gas-tight system that may be difficult if not impossible to maintain by using a mask alone; (2) a patent airway, which alone is sufficient reason to recommend the method; (3) ability, during operation, to clear periodically the lower respiratory tree of mucus and other matter so frequently present in elderly persons; (4) ability to carry the patient in a lighter plane of anesthesia by eliminating the hazards of regurgitation and aspiration encountered in lightly anesthetized patients, and (5) ability to perform an adequate and thorough tracheobronchial toilet at the end of the surgical procedure, which aids in reduction of postoperative atelectasis and other pulmonary complications.

INTRAVENOUS ANESTHESIA. Intravenous anesthesia was used only for closed reductions, manipulations and examinations when amnesia and narcosis were of more importance than surgical anesthesia.

SPINAL ANESTHESIA. When certain precautions are observed, our experience has been that spinal anesthesia is

the method of choice for surgery of the lower extremities and the pelvis. It was used for the majority of cases of open reduction of fractured hips, transurethral resections, amputation, cystotomies and for similar cases. The precautions that have been found wise to observe are the following: 1. Spinal anesthesia is not employed when the preoperative blood pressure is above 180 mm. of mercury systolic. 2. Spinal anesthesia is not used when there has been a significant drop in blood pressure following premedication. We consider a drop of 20 mm. of mercury as significant. 3. Spinal anesthesia is not used when there is evidence of anemia (hemoglobin level of less than 12 Gm.), disease of the central nervous system (other than that incident to senility) or when there has been recent shock. 4. The dose of anesthetic agent is always kept small. One hundred milligrams of procaine or 10 mg. of tetracaine is maximal and infrequently used. 5. Small doses of ephedrine, or similar analeptic, are used intramuscularly or subcutaneously prior to the administration of the spinal anesthetic to assist in preventing fall in blood pressure. 6. The

level of anesthesia is kept below the level of the tenth thoracic segment and when possible is kept unilateral.

All patients of the age group being discussed, except those coming to surgery for superficial biopsies and like procedures, receive some fluid, parenterally. The judicious use of fluids tends to overcome presurgical dehydration and helps the vascular system accommodate to minor fluctuations

in volume of circulating blood incident to change in blood pressure. It is a ready means of supplementary medication for the starting blood transfusion if desirable. Sixth molar lactate is the solution routinely used in this hospital before transfusions, and has largely eliminated minor transfusion reactions. This solution is also valuable in stabilizing the acid-base balance.

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RDD:RDD



VETERANS IN MEDICAL SCHOOL

Veterans, about to enter medical school under the G. I. Bill or Public Law 16, stand a better-than-average chance of completing their training successfully if they meet any, or preferably all, of the following qualifications:

1. Obtain grades of B plus or better in their pre-medical training;

2. Make particularly high grades in the natural sciences; and

3. Enroll in medical schools in the same educational institution in which they completed their pre-medical work.

These conclusions, compiled by Veterans Administration from previously published studies, were distributed in a bulletin to VA vocational advisers and training officers. Purpose of the bulletin is to help VA officials advise ex-servicemen and women desiring to enter medical school under either law.

One study, quoted in the bulletin, disclosed that at Baylor University Medical School in Waco, Texas, 99 percent of all failures during a 10-year period were students whose pre-medical grades averaged below B plus.—*Release, Veterans Administration, Information Service, Washington 25, D. C.*

A NEWER TREATMENT FOR SCABIES

By Harry M. Robinson, Jr., M. D., and Harry M. Robinson, M. D.
Baltimore, Maryland

Condensed from the Southern Medical Journal

SEVENTY-ONE cases of scabies, 65 of which were complicated by a superimposed pyogenic dermatitis, were treated with the following benzyl benzoate-tyrothricin mixture:

Tyrothricin	0.05%
Benzyl benzoate	30.0%
Benzocaine	3.0%
23 H. alcohol (ethyl)	65.0%
Distilled water and flavoring agents q.s.	

It was thought that a combination of these two drugs should prove to be effective in the treatment of scabies, especially in those cases so frequently complicated by secondary pyogenic infection.

Each patient was furnished with a bottle of the benzyl benzoate-tyrothricin mixture and was advised to apply it in accordance with the following directions:

1. Open blisters and remove crusts with a needle.
2. Take a warm bath with copious amounts of soap and water.
3. Dab dry.
4. Rub the solution on lightly from

neck to toes twice daily for the next two successive days.

5. After the second day take a bath as at first and then report to the doctor.

6. Scabies is a contagious disease and every member of the family who is infected should be treated.

7. All bed clothes, underwear, towels, and so on, that come in contact with the infected skin should be sterilized by boiling.

A satisfactory result was obtained in all but two cases, one of which was uncooperative and refused to use the medication. In 69 cases there were no lesions at the end of 14 days.

No serious reactions were encountered in this series. Eight of the patients complained of burning following the application which lasted from 5 to 10 minutes but was not severe enough to cause the treatment to be discontinued. One patient developed a moderately severe erythema and had to discontinue use of the mixture after several days' use.

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(Southern Medical Journal, December, 40: 1010-1013)

JPS:CHC

CLINICAL OBSERVATIONS ON THE USE OF THEPHORIN (NU-1504): A NEW ANTIHISTAMINE AGENT

By John L. Reynolds, M. D., and Bayard T. Horton, M. D.

Condensed from the Proceedings of the Staff Meetings of the Mayo Clinic

THEPHORIN is a new antihistamine agent, originally known as NU-1504. It belongs to a heretofore unknown class of compounds and is a polycyclic amine. Studies in animals have demonstrated the antagonism of this substance to histamine. Studies on toxicity show that the dose of thephorin required to cause death of 50 per cent of animals is almost exactly that of benadryl but that thephorin is less toxic than pyribenzamine. There is no evidence of chronic toxicity in animals.

The purpose of our study was to investigate the use of this agent in subjects with symptoms thought to be due, in whole or in part, to the release of H substance. For the most part, our patients either had failed to respond to other forms of therapy or had been required to discontinue other therapeutic agents because of the production of toxic symptoms. Frequently, in these cases, pyribenzamine had caused gastro-intestinal symptoms and benadryl had caused

hypnotic symptoms. The oral preparation that was supplied to us in the form of a 25 mg. tablet was used. The average daily dose was 100 mg., the maximum being 200 mg. and the minimum, 25 mg. To date, we have treated sixty-two patients with thephorin.

Of the 22 patients with hay fever, 17 obtained excellent results. Four patients with severe symptoms received 50% relief and were adequately relieved only very early in the season. Thephorin failed to give one patient any relief. No toxic symptoms were experienced by any of the patients except one who complained of drowsiness.

Eleven patients with non-seasonal vasomotor rhinitis were treated. They all had nasal congestion and some degree of associated chronic sinusitis and "sinus headache." Of this group, seven experienced excellent results, with relief of symptoms and a clearing of the associated sinusitis or headache or both.

Of the six patients in whom

urticaria developed following exposure to cold, five obtained at least 75% improvement of symptoms.

Of the three patients in this group, urticaria developed in two after the use of penicillin, but both failed to show any improvement. One patient in, whom hives developed repeatedly after the intravenous administration of histamine was relieved by the use of thephorin; also thephorin, when used for premedication, prevented hives in this case.

Nine patients with atypical histaminic cephalgia were treated. All of these patients were also being treated by histamine desensitization. It was because of their failure to respond promptly to histamine

desensitization that additional therapy with thephorin was instituted. In two subjects the headache subsided within 12 hours but no change was noted in the other seven.

One patient with Ménière's symptom complex was treated for two weeks. He was unable to detect any change in the degree of deafness, tinnitus or vertigo during treatment.

No serious toxic symptoms have resulted in our patients from the use of this drug. Two patients have been using it daily for ten months. General examinations and complete blood studies, urinalysis and electrocardiographic studies on these two patients at frequent intervals have disclosed no evidence of any toxic changes.

KAE:KOE



PENICILLIN TOLERANCE

The frightening idea that penicillin will become useless as a remedy in a few years because the disease germs it now checks will all have developed resistance to its action is somewhat dispelled by a discovery of Dr. A. Voureka, British Council Research Scholar working in the Wright-Fleming Institute at St. Mary's Hospital, London, where penicillin was discovered.

Germs that have developed resistance to the famous mold remedy can be made sensitive to it again in a few minutes. All that is necessary is for the resistant germs to associate briefly with germs of another family. Resistant staphylococcus germs, for example, were made sensitive by associating with streptococci or with diptheria, typhoid and pneumonia germs.—*Science News Letter*, February 14, 53:103, 1948.

A NEW AND RAPID METHOD FOR THE CONTROL OF URINARY TUBERCULOSIS: PRELIMINARY REPORT

By George E. Slotkin

Condensed from the Journal of Urology

THIS STUDY was undertaken to determine whether there existed a more rapid and permanent control of inoperable or bilateral renal tuberculosis than the present therapeutic methods offered. It was not the purpose to supplant the existing treatment of unilateral upper tract tuberculosis with its secondary bladder symptoms nor lower tract involvement which is still a surgical procedure but rather to hasten the control of those cases which were treated by expectant hygienic measures in the preoperative stages of this disease.

Since the advent of the high powered microscope, it is known by all bacteriologists that the *Mycobacterium tuberculosis* has a protecting waxy cell wall which protects the organism and had made resistant with the exception of material immunity of the individual, the extinction of this germ. The same condition exists exactly in the *Mycobacterium leprae* and it is almost impossible to try to determine the difference between these

two organisms except that in smears the leprae appear in more crowded clusters in the cells and are recognizable because of this feature. With this knowledge the author, before the advent of the present antibiotics, recognized these principles. To hasten the curative effects of encapsulating the organism through fibrosis, some 10 years ago I arrived at the hypothesis that if there was present a substance which would dissolve this protecting waxy wall of the *M. tuberculosis*, the material processes involved in inhibiting the growth of the lesions might be enhanced, and, knowing the existence of the same process in the *M. leprae*, the oil of chaulmoogra and its derivative esters was experimented with in a few chosen cases. Because of the instability of the preparation, results of the preliminary studies were distressing and unsatisfactory. The idea remained, however, until such time as a more stable, refined preparation was offered and which occurred shortly before

the advent of streptomycin.

The present series was undertaken about January 1947 with the newer oil preparation. The first 3 cases were treated with the regular oil of chaulmoogra, which is a fatty oil expressed from the seeds of taraktogenos Kuzzi. Later, however, it was noted that a more refined oil, which is painless, more readily absorbable and non-irritating, could be derived from the ethyl ester hydnocarpus oil which is the preparation which is now being used under the trade name of Moogrol.

Each patient received 1 cc. of the oil intramuscularly daily for 3 days, then increased to 2 cc. for 4 days. On the seventh day, the patient received 1 cc. of the oil and 1 Gm. of streptomycin for 30 days. The antibiotic is added to 16 cc. distilled water or saline solution and administered in 8 doses of 2 cc. each, every three hours. All patients were hospitalized but ambulatory.

Six active cases of inoperable and bilateral renal tuberculosis have been treated. All showed distinct improvement.

AN ILLUSTRATIVE CASE HISTORY: F, 29 years, a single Nisei nurse, 3 years ago found to have tuberculosis of the chest with effusion, and was treated by collapse of the right lung. In April 1946, hematuria developed and marked urinary symptoms. Cystoscopy disclosed a "frozen" left ureter. Bilateral renal tuberculosis was reported. The patient was in Chicago at the time, and has been on rest cure ever since. She was seen by me in Buffalo, May 21, 1947 complaining of frequency every 2 hours, and nocturia 3-4 times. Cystoscopy revealed active tuberculosis ulceration of the bladder. Pyclograms disclosed considerable dilatation of both ureters without active degeneration of the kidneys, which, by direct smears, were positive for tuberculosis, confirmed later by positive pigs. She was immediately placed on Moogrol and streptomycin for 1 month with complete alleviation of all her symptoms, and no nocturia up to 9 hours. On June 27th, 1947, the urine was absolutely negative on gross examination. Cystoscopy disclosed a normal bladder with smooth clean mucous membrane. A specimen was taken for pig inoculation. On August 7, the pigs were sacrificed and autopsy disclosed no evidence of tuberculosis.

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BR:RDD



No person will have occasion to complain of
the want of time who never loses any.—
Thomas Jefferson

ACUTE FRONTAL SINUSITIS

By Geoffrey H. Bateman, F. R. C. S.

Condensed from the Medical Press

ACU TE FRONTAL SINUSITIS is a complication of an upper respiratory infection. The illness usually begins with a severe head cold or influenzal attack and this is often associated with transitory discomfort over the various paranasal sinuses during the period of invasion when the sinus mucosa become inflamed. The symptoms pass off and the patient is left with only a thick nasal discharge and some nasal obstruction. He resumes his normal activities and at this stage the frontal pain recurs, one side of his nose becomes more obstructed and the discharge from that side of his nose increases. The pain is usually frontal and unilateral, but there may also be some discomfort and pain in the cheek and teeth of the upper jaw on the same side as the frontal pain. The frontal pain tends to come on an hour or two after getting up in the morning and to increase in severity and reach its climax around midday. It then gradually passes off and the pa-

tient is free from pain in the evening. Stooping, e.g. to do up the shoe-laces, increases the pain and patients often complain that striking the heels on the pavement whilst walking briskly jars the head and increases the pain. The patient localizes the pain on the floor of the frontal sinus just above the inner canthus of the eye on the affected side. When the pain becomes severe it spreads to both sides of the forehead and the patient will hold his hand flat over the forehead in localizing the pain.

DIAGNOSIS. The diagnosis rests on (1) a history of recent upper respiratory infection; (2) frontal headaches which tend to be at their worst in the middle of the day in an ambulatory patient; (3) nasal symptoms, discharge and obstruction, worse on the side where the pain is worse; (4) dullness to transillumination of the maxillary antrum on the affected side; (5) tenderness on percussion over the frontal sinus and pressure on the floor of the frontal sinus. This diag-

nosis can be confirmed by radiology. There is often not an obvious change in radiologic appearances of the frontal sinus and great caution should be exercised in making a diagnosis of frontal sinusitis unless there is radiologic evidence of maxillary sinusitis on the same side.

There are all graduations of acute frontal sinusitis, but in order to clarify the clinical picture and describe treatment the cases may be divided into three classes of increasing severity:—Acute catarrhal frontal sinusitis, acute suppurative frontal sinusitis and fulminating frontal sinusitis.

The patient with acute catarrhal sinusitis complains of the typical diurnal pain. There is some tenderness on pressure over the floor of the frontal sinus and some hyperesthesia on percussion over the anterior wall of the sinus. The illness is usually apyrexial but there may be a slight evening rise of temperature. There is no edema over the frontal sinus. The antrum on the affected side is dull to transillumination. Radiology will show opacity of the antrum, with perhaps a fluid level, and diffuse haziness of the frontal sinus.

The patient with acute suppurative sinusitis complains of frontal pain all day and night. He has pain all his waking hours and it is increased by any activity and particularly by stooping. He is unmistakably tender on pressure on the floor of the frontal sinus and soon develops some edema of the upper eyelid. The illness is pyrexial but the temperature is not usually high, ranging between normal and 100° F. The antrum is dull to transillumination and rhinoscopy will show pus in the affected side of the nose.

Fulminating frontal sinusitis is a severe and rapidly progressive illness, which puts the patient to bed and keeps him there. He is attacked by severe and increasing pain with early edema of the eyelid. He runs a high temperature from the beginning of the illness and this tends to rise. The edema rapidly increases and may spread to the anterior aspect of the frontal sinus. He is tender on light pressure over the floor and anterior wall of the frontal sinus and he resents the lightest percussion.

TREATMENT. The object of treatment is to restore the patient to full activity as soon

as possible whilst avoiding the risk of complications and sequelae and restricting his freedom as little as possible. The complications to be considered are an orbital abscess, and extradural abscess, meningitis, cerebral abscess and osteomyelitis of the frontal bone. Chronic frontal sinusitis is the sequela to be considered and treatment should be continued until the infection has been overcome and not merely till the symptoms have abated.

CATARRHAL FRONTAL SINUSITIS. Treatment follows three lines:—Promotion of drainage and ventilation of the sinuses by nasal decongestives, control of pain with analgesics and minor intranasal manipulations to clear up the antrum infection.

Ten per cent Sulphacetamide with 0.5% Ephedrine in normal saline may be used as nasal drops or as a nasal spray. Aspirin or Tab. Codein Co. may be used as analgesics. A pledget of cotton wool wrung out in 10% Cocaine HCL solution should be tucked as high as possible between the middle turbinate and the lateral wall of the nose and left there for 15 minutes. The antrum should be punctured and washed out unless drainage is

established in a day or two. Ultra short wave therapy is often helpful in speeding the recovery and increasing the comfort of the patient when drainage has been established, but it does not help in cases where the ostium is blocked and the antrum contains pus. When the patient is confined to bed steam inhalations with Menthol gr. 1 and Tinct. Benzoin Co. 31 at four hourly intervals are comforting and help to promote drainage.

These patients will probably respond to these simple measures and neither penicillin nor sulphatherapy is indicated unless the patient's condition deteriorates, when he should be put to bed and treated as acute suppurative frontal sinusitis.

A patient with acute suppurative frontal sinusitis should be treated in bed. The infecting organism is nearly always both penicillin-sensitive and sulfa-sensitive and he should be given full doses of both. In addition, nasal decongestives and analgesics should be prescribed. The antrum should be punctured and washed out if recovery is slow or if purulent nasal discharge persists after the acute symptoms have disappeared. Again the

cocaine pack for 15 minutes twice daily laid in the middle meatus is of great value in promoting drainage. If the frontal pain persists in spite of the pyrexial illness subsiding

under treatment, partial amputation of the middle turbinate and perhaps passage of a frontal sound should be considered.

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FOH:RDD



FEDERAL SECURITY ADMINISTRATOR EWING CALLS NATIONAL HEALTH ASSEMBLY

Oscar R. Ewing, Federal Security Administrator, today announced the formation of a National Health Assembly, to be held in Washington, May 1-4. The Assembly is being set up as a result of the message of President Truman to Mr. Ewing of January 30 in which Mr. Ewing was requested to develop feasible national health goals for the next 10 years.

Twenty-four national leaders in various fields have been invited by Mr. Ewing to serve on the executive committee of the Assembly, which will consist of representatives of public and private organizations and agencies in the country concerned with various phases of the Nation's health. Preliminary estimates are that 700-800 people will attend the Assembly sessions.

Most of the activity of the Assembly, Mr. Ewing said, will be in the form of panel discussions, each panel to explore fully a specific phase of the health problem. The number and membership of the panels will be announced shortly.—*Federal Security Agency release, Washington 25, D. C.*



The first U. S. Public Health Service demonstration mental health clinic has now been opened in Prince Georges County, Maryland. The clinic will be operated jointly by the Maryland State Department of Health and the Public Health Service, with Federal funds under the National Mental Health Act. Forty thousand dollars has been appropriated for the fiscal year 1948.—*Release, U. S. P. H. S., Washington, D. C.*

THE NATIONAL BLOOD PROGRAM OF THE AMERICAN NATIONAL RED CROSS

Condensed from the Military Surgeon

ON JUNE 12, 1947, the new Board of Governors, American Red Cross, approved and authorized the National Blood Program as an activity of the American National Red Cross.

The National Blood Program will operate substantially along the same lines as the wartime blood program, with established blood donor centers, and with mobile units to cover outlying communities. Red Cross chapters will assume the responsibility of complete community organization to enroll blood donors and will arrange for the bleedings as needs require. In addition to competent professional personnel for technical work, many volunteers will be necessary for nontechnical work in the centers.

The processing of the blood will involve highly skilled work. Some of the blood collected will be examined, typed, and distributed to local hospitals for use as whole blood; some of it will be shipped to commercial laboratories with which contracts will be made by national headquarters to fractionate blood into its derivatives. It is believed that approximately 60% of the blood collected will be used as whole blood.

That part of the program which deals with distribution involves making the best possible arrangements that will afford ready accessibility of the blood and blood products to all people and their hospitals including veterans, military, and marine as well as civilian hospitals.

Continuous research and study as to the effectiveness and new uses of blood products will be carried on by research authorities with the guidance of the Blood and Blood Derivatives Committee of the American Red Cross Advisory Board on Health Services.

Operating centers of the National Blood Program will be selected and established only after full consultation between the national organization and the chapters concerned. Such chapters will be furnished with complete information covering the method of organization of the blood donor service, ground work for community support, public relations and promotion, the use of publicity, suggested publicity aids, the operation of the blood donor center, clinic instructions, and the relationships between chapters, area, and national headquarters.

The program will be financed through contributions made by the American people. Each year the Red Cross fund campaign will take into consideration the amount necessary to carry on this important service.

It is the ultimate goal to collect blood from volunteers from

all communities and to give every individual an opportunity to make a contribution once a year.

The only charge ever made to any patient will be a reasonable one by the physician or hospital for professional services in administering the material. The Red Cross will make no charge.

LFK:CHS



URGE EXAMINATION OF HIP

Every baby should have its hip joints examined before the age of six months, Dr. Vernon L. Hart of Minneapolis declared at the meeting of the American Academy of Orthopedic Surgeons in Chicago.

Prevention of life-long deformity due to a dislocated hip is the reason he urges this examination.

"The only hope for cure of these patients, suffering from congenital dislocation of the hip, is early recognition and treatment during the age period of infancy before the infants begin walking," Dr. Hart said in his paper.

Three signs that may mean the baby's hip is dislocated are: 1. Extra skin folds of the thigh; 2. shortening of the distance from the pelvis to the knees; 3. limitation of the hip in spreading apart the knees when the hip is flexed.

If any one of these signs is present, the doctor should have an X-ray study made.—*Science News Letter, February 14, 53:100, 1948.*



A disease is farther on the road to being cured when it breaks forth from concealment and manifests its power.—*Seneca*

TOILET EDUCATION

By John C. Montgomery, M. D., Detroit, Michigan

Condensed from the American Journal of Orthopsychiatry

ANY PHASE of infant care and educational guidance should be planned to aid in meeting the infant's total developmental needs, psychological as well as physical, and also in terms of long-time ultimate goals. In formulating a plan for guiding him in learning control of his anal and urethral sphincters we must first remind ourselves that our goal is not an infant kept clean and dry from an early age through constant maternal vigilance. Our objective is rather a child who develops self-reliance in the management of his eliminative functions. We want him not only to take on habits acceptable to our society but, more important, to develop also common-sense attitudes toward health rules without over-emphasis upon them nor exaggerated servitude to them.

Self-control of elimination involving the contraction or release of the sphincters of the anus and urethra at appropriate times and places demands both a high degree of inhibition by the higher centers of the

brain, and also learning on the part of the child to call upon this inhibitory power to function at will. Myelinization of the necessary nerve fibers is not complete before the twelfth to the eighteenth month of life and any real learning of toilet control is not possible until after this takes place.

Psychological considerations are of equal importance. During the early part of the second year of life the child is absorbed in learning upright locomotion and the rudiments of speech. It seems unreasonable further to burden his educational curriculum at this time. This is particularly true because frequently the ability to contract the sphincters overbalances relaxation at this age. The apparent success of earlier coercive training which may previously have been attempted frequently breaks down and is almost inevitably interpreted by the parents as regression with ensuing unfortunate results on intrafamilial tempers.

Early attempts at training may have another unfortunate result in that the child may

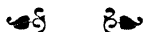
learn that eliminative control is really his mother's or nurse's responsibility. It may be months or even years before he succeeds in recapturing this responsibility from the adult.

Curiosity and imitation are prominent characteristics of the child during his second year and they are invaluable assets in the learning process. We believe that it is essential that every child be given an opportunity to observe the use of the toilet by other members of his immediate family. It is our present practice not to recommend any attempt at toilet education until ample opportunity has been afforded for such observation. We also believe that no attempt should be made until certain criteria of adequate maturation have

been satisfied. He must have achieved sufficient success with upright locomotion to be able to walk with confidence and even to run a little. Some indication of the maturation of his nerve tracts may be had from observation of his awareness of having wet or soiled himself or his ability to remain dry for more than two hours.

Thus, we believe that acculturation in the area of eliminative function can be most easily achieved by the child if his adult guardians bear in mind always that this is a *learning* rather than a *training* program, and that all learning must proceed according to the individual child's own tempo and at an adequate level of maturity.

SBH:KOE



BAL RESTORES EYESIGHT

A patient whose eyesight was damaged by arsenic has had his vision restored by treatment with BAL.

The patient was a 49-year-old man who was losing his eyesight because of damage to the optic nerve from arsenic. The arsenic was given him in the form of tryparsamide for treatment of syphilis. Two days after the second dose of this standard anti-syphilis drug, he could not see the sidewalk when walking.

BAL was started at once and was given by injection every day for 10 days. Nine days later his vision was normal.—*Science News Letter*, December 27, 52:411, 1947.

¶ The end results of radial measures were good.

THE MANAGEMENT OF PIGMENTED NEVI AND MALIGNANT MELANOMAS

By George T. Pack, M.D., New York, N. Y.

Condensed from the Southern Medical Journal

THE majority of malignant melanomas are preventable through early and appropriate treatment of the precursory lesion, the common mole or nevus.

The neval cell and its malignant derivative, the melanoma cell, have their origin in the complex tactile end organ apparatus. In this sense, these tumors are derivatives of the peripheral nervous system and are neuro-ecto-dermal in origin. They may originate in the corium or develop intradermally. The cell is melanoblastic, and the melanoma is usually darkly pigmented although some tumors appear to be non-pigmented.

It is impossible to present any statistical data governing the frequency with which pigmented nevi undergo malignant degeneration.

It may be accepted as a dictum that every member of the white race has at least 1 or more moles on his body and as a result of this is potentially subject to the development of malignant melanoma. Malignant melanomas occur more frequently in blond individuals, including those with

sandy complexions who freckle easily and do not tan well. Such persons do not have a well-developed resistance to the growth of pigmented cell tumors. Accumulated case histories would seem to suggest that repeated chronic irritation of pre-existing moles could be a factor in inducing their change into the malignant variety.

It is our belief that the malignant melanoma in its derivation from the pigmented nevus is a tumor closely related to the endocrine system and influenced by the activity of the gonads, the suprarenal cortex, and perhaps the pars intermedia of the hypophysis. In keeping with this opinion, we have observed rapidly growing and widely disseminated melanomas which occurred just after the age of puberty. We have had a number of instances in which a pigmented nevus underwent malignant degeneration into melanoma during pregnancy or shortly thereafter and when this occurred the tumor grew rapidly and was widely disseminated without control by radical surgical excision or any

method of treatment.

There is an important type of pigmented nevus found in children from the age of 1 until puberty which resembles malignant melanoma histologically and conforms structurally to the true melanoma but it ordinarily does not behave as such until after puberty. In our experience none of these melanotic tumors of infancy and childhood have metastasized to regional lymph nodes, although many have been labelled malignant melanoma by competent pathologists.

Since pigmented nevi and malignant melanomas are radio-resistant, surgical excision is the only appropriate method of treatment. If a pigmented mole is removed in its benign state, it never recurs as melanoma. A microscopic study should be made of all excised pigmented moles.

When a pigmented mole becomes elevated, with increased pigmentation or ulceration, bleeding and localized discomfort or pain, it may indicate that the tumor is becoming malignant.

Once the diagnosis of malignant melanoma is made, the surgeon must perform a wide surgical excision of the tumor and surrounding skin. The excision should go so deeply that not only the skin, but the underlying fat and fascia overlying the muscles,

should be removed to extirpate the adjoining lymphatics. The removal of skin may be so great as to necessitate a skin graft.

The best prognosis occurs when the malignant melanoma is widely excised by these methods before metastasis has occurred. Malignant melanomas that have metastasized by way of the regional lymphatics are still amenable to surgery but it is impossible to cure those melanomas which early enter the vascular system.

If metastasis to regional lymph nodes has occurred and the malignant melanoma is situated in the skin relatively close to the first relay of lymph nodes, surgery consists of a wide elliptical removal of the skin to include the primary melanoma, the skin intervening between the melanoma and the axilla or groin, or neck, an excision of the skin of the lymph node-bearing region, together with a wide dissection of the underlying fat and fascia, down to and exposing the muscle over this area. The operation is completed by a radical dissection of the regional lymph nodes. By this means, not only is the primary tumor removed and the first relay of metastases in regional nodes, but the intervening lymphatics as well.

The condition sometimes exists where the primary malignant

melanoma is situated in the skin at a remote site from the regional lymph nodes, involved by metastases. When this exists, the proper procedure is amputation of the entire extremity with dissection of regional lymph nodes. This is the only measure by which all of the intervening lymphatic network can be removed, and with it the hazard of deposition of melanoma cells and local recurrence in the intervening tissues.

When the melanoma is located in the foot with metastasis to the groin, the patient must undergo a hip joint disarticulation with dissection of the deep lymph nodes in the groin, which is done by splitting the inguinal ligament, lifting up the peritoneum intact, and dissecting the iliac lymph nodes from the bifurcation of the vessels retroperitoneally down to

and including the inguinal region. In the upper extremity, with malignant melanoma of the hand metastatic to axillary lymph nodes, the surgeon would perform an interscapulo-thoracic amputation, which is removal of the scapula, the clavicle, and the entire extremity associated with a dissection of the lower cervical lymph nodes. In this operation the axilla is removed rather than dissected, so that dissection can be carried superior to the upper limits of dissemination of the melanoma. Interosciculo-thoracic amputation has been done more than 50 times at the Memorial Hospital without an operative death.

The end results in the treatment of malignant melanoma by the adoption of these radical measures have greatly improved.

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LKF:CHS



BREAST-FEEDING IN ERYTHROBLASTOSIS FETALIS

Some physicians advocate the weaning of infants who have hemolytic disease, because Rh antibodies are frequently present in the milk of their mothers.

To ascertain whether this procedure is advisable, we have made studies on normal infants, and on those with hemolytic disease. We have observed particularly the fate of ingested Rh antibodies. Our data have showed that although Rh antibodies are not readily destroyed in the stomach of infants, they are not absorbed into the blood stream in detectable amounts.

We conclude therefore that the weaning of infants with hemolytic disease is not justified.—I. A. B. Cathie, M. D., *British Medical Journal*, October 25, p. 650, 1947.

CEL:HBJ

PLEURODYNIA

Preliminary Note on an Epidemic in Boston

By John J. Finn, Jr., M.D., Boston

Condensed from the New England Journal of Medicine

BEGINNING in July and continuing through August and September, 1947, a large group of patients afflicted with an acute febrile illness resembling what has been popularly known in the United States as "devil's grip" or "epidemic pleurodynia" were admitted to the medical and surgical wards of the Boston City Hospital. At the time of submission of this report, patients are still being admitted sporadically.

The current epidemic appears to be of major proportions, for not only is the number of known hospitalized cases at the Boston City Hospital well over the 100 mark but also the number seen in the Outpatient Department and on the Emergency Floor and not admitted is estimated to have far exceeded this figure.

If the experience at the Boston City Hospital is any criterion, it appears that the disease is being misdiagnosed in many cases and is being confused with pneumonia, influenza, infectious mononucleosis, nonparalytic poliomyelitis, lymphocytic choriomeningitis, gastroenteritis and acute surgical conditions of the

abdomen. The diversity of signs and symptoms easily accounts for this confusion.

The purpose of this preliminary report is to call attention to the presence of the epidemic and its varied manifestations.

The disease occurs in the late summer and early fall and seems to affect mostly younger people. In general, it is characterized by lack of prodromes, the onset being sudden and the initial symptom in most cases being pain. The pain is usually located in the lower thoracic or upper abdominal regions, or both, and may vary in intensity from a dull ache or distressed tight feeling to an excruciating type. The pain is usually intimately associated with the line of attachment of the diaphragmatic insertions to the thoracic wall and is aggravated by deep breathing, by coughing and frequently by motion. There is usually an associated hyperesthesia in the areas of distribution of the pain, which tends to occur in paroxysms. It may shift from one side of the thorax to the other but is usually located in the region of the diaphragmatic attachments.

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(*New England Journal of Medicine*, October 23, 1947: 621-623)

Shoulder, scapular or interscapular reference of the pain may occur. Soon after or coincident with the onset of pain, there is fever, the temperature reaching as high as 104° F. in a few hours (usually about 12 hours), with a gradual fall to normal within the next 12 hours. After the initial return of the temperature to normal, there may be one or more recrudescences of pain and other symptoms. Between recrudescences, the patient may be completely asymptomatic. Once the fever has permanently remitted there are usually no further symptoms except for an occasional twinge of pleurodynia. The fever, however, may run an irregular course up to 10 to 14 days. Chills or chilly sensations are not uncommon and may be the initial symptom. Other symptoms described in previous epidemics include: mild upper respiratory symptoms, such as a so-called "head cold," mild pharyngitis and slight, nonproductive cough; central-nervous-system symptoms, such as headache, which may be severe, photo-

phobia, paresthesias and even convulsions; and gastrointestinal symptoms, such as anorexia, nausea, vomiting, diarrhea and tympanites, especially in children. Physical findings in the usual case are rather few other than the fever, splinting of the chest and upper abdominal or thoracic tenderness. A pleural friction rub may or may not be heard at some time during the course of the disease or even in convalescence. X-ray films of the chest are classically completely normal. Laboratory studies are of little significance. The white-cell count is normal or slightly elevated at the beginning of the illness, with a drop later. Eosinophilia, especially in convalescence, has been described in earlier epidemics. The disease is apparently a benign one in the vast majority of cases, although complications such as pericarditis, orchitis and jaundice have been mentioned.

The cause of the disease is unknown, the general impression being that it is of viral origin with an incubation period of 8 to 10 days.

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KAE:KOE



¶ If the man thinks about his physical or moral state he nearly always discovers that he is ill.
—Goethe

NEWER DIAGNOSTIC METHODS IN HEART DISEASE: THEIR APPLICATION IN CLINICAL PRACTICE

By Arnold Iglaue, M. D.

Condensed from the Cincinnati Journal of Medicine

PATIENTS with congenital heart lesions merit careful study to determine whether they can be helped by surgical therapy. Although surgical treatment is applicable to only a small fraction of all hypertensive persons, the physician should attempt to discover those who fall into this group.

Patent ductus arteriosus, the first congenital lesion successfully treated by operation, is characterized clinically by a loud, continuous, machinery-like murmur maximal in the second and third interspaces near the left sternal border, usually with wide transmission over the thorax. Cyanosis, clubbing of the fingers, and polycythemia are absent. If the flow through the duct is large, there is wide pulse pressure, with low diastolic blood pressure. The electrocardiogram may show either left axis deviation or normal electrical axis. The X-ray findings are (1) dilatation of the pulmonary artery; (2) cardiac enlargement; (3) enlargement of the left auricle; (4) engorgement of the intrapulmon-

ary vessels; (5) exaggerated pulsation of the aorta, pulmonary artery, and left ventricle, and (6) the hilus dance, i.e., unusually prominent pulsation of the pulmonary arteries within the lung fields.

Over 400 cases of pulmonary artery stenosis associated with interventricular septal defect, dextroposition of the aorta, and right ventricular hypertrophy (Tetralogy of Fallot) have been treated by surgical production of an anastomosis between the greater and lesser circulations. These patients have marked limitation of activity, often become unconscious after exertion, and tend to assume a squatting position to improve their respiration. The clinical findings are cyanosis and clubbing of the fingers, associated with a systolic murmur over the pulmonic valve area. There is polycythemia, with erythrocytes sometimes as high as 10,000,000 per cu. mm. The radiologic findings most valuable in differential diagnosis are: (1) pulmonary congestion and hilar pulsation are absent;

(2) the pulmonary artery shadow on the left border of the base of the heart is concave rather than convex; (3) in the left anterior oblique view the pulmonary window in the aortic arch is abnormally clear; (4) the heart is usually not markedly enlarged. The electrocardiogram almost invariably shows right axis deviation.

Coarctation of the aorta has been successfully treated by resection of the narrowed segment and suture of the cut ends of the aorta. Recognition of this condition is based on the finding of hypertension in the arms associated with lowered blood pressure in the legs. A systolic murmur over the aortic area is sometimes present. Roentgenologic examination may demonstrate a small aortic knob and descending aorta, and left ventricular enlargement. Notching of the inferior margin of the posterior portions of the ribs by the dilated collateral vessels is a valuable sign when present, although it occasionally occurs in other conditions.

Right aortic arch, double aortic arch, and origin of the right subclavian artery from the left portion of the aortic arch may produce compression of the esophagus or trachea

with clinical symptoms. Diagnosis is based on roentgen study of the deformity of the esophagus or trachea after introduction of radio-opaque material. Operation has been performed successfully for the relief of dysphagia or respiratory obstruction.

Pulmonary arteriovenous fistula has been treated by removal of the segment of lung containing the lesion. Patients with this congenital defect are cyanotic, have marked clubbing of the fingers, and show marked polycythemia. Their hearts are of normal size, and no cardiac murmurs are heard. A bruit over the involved section of lung has been reported in some cases. Diagnosis depends on the discovery of a pulsating, circumscribed lung shadow by roentgen examination.

Despite continuing interest in the treatment of hypertension by operation on the sympathetic nervous system, no entirely satisfactory methods have been developed for selecting patients for this procedure. At present, operation is usually recommended only for patients with severe progressive hypertension. In general, it is felt that the younger patient, whose blood pressure may be reduced to or near the

normal range by such measures as bed rest, administration of barbiturates, or spinal or caudal anesthesia, is most apt to be benefited.

Slowing of blood flow, manifested by prolonged arm to tongue circulation time and a decreased vital capacity, are two helpful measurements in congestive heart failure. In dyspnea due to pulmonary disease, and in edema due to causes other than heart failure, the circulation time is usually normal. Low vital capacity values may occur in pulmonary disease as well as in heart failure, but finding of

a normal value helps exclude congestive failure.

New instruments have been developed, and there have been technical advances in older instrumental methods for the study of heart disease. These include the graphic recording of heart sounds and the use of certain contrast media for the study of blood vessels. However, careful history-taking and physical examination have not been outmoded as basic methods for the diagnosis of heart disease and the guidance of its treatment.

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JPS:CHC



ALCOHOL VS. CANCER IN MICE

Cancers in mice, of the type known as lymphosarcoma, have stopped growing and begun to disintegrate after injections with small amounts of 95% alcohol, in experiments reported by Dr. Allan D. Bass and Miss Marion L. H. Freeman of the Syracuse University College of Medicine.

The effect was discovered almost accidentally. The two researchers were injecting various drugs, dissolved in alcohol, into mice with malignant tumors. They found that destruction of the growths was practically as great when alcohol alone was used.

The typical dose was a few drops (one-fiftieth of a cubic centimeter) of the 95% alcohol injected directly into the abdominal cavity. Weaker solutions, such as 19% alcohol, had no noticeable effect.

There is just one drawback, so far as possible applicability in human medicine is concerned—a high percentage of the treated mice died.—*Science News Letter*, February 14, 53:99-100, 1948.

TREATMENT OF LIPOID NEPHROSIS

By Clifford K. Kobayashi, M.D., Iowa City, Iowa

Condensed from the American Practitioner

THE treatment of nephrosis continues to be symptomatic; one important phase is directed at the prevention and treatment of intercurrent infections, which are responsible for most, if not all, of the deaths in nephrosis.

The care of a child with nephrosis presents certain disadvantages in a hospital, namely, the increased exposure to infections and the lack of parental care. Nevertheless, hospital care presents numerous advantages over home care—advantages which outweigh the disadvantages. The patient should be kept in a single room or in a larger room with several other children with nephrosis. All those entering the room should be masked in an effort to minimize the incidence of upper respiratory infections. The patient's activities should be unlimited except during periods of marked edema and intercurrent infections, during which he should be at bed rest. Constant nursing care is of utmost importance.

DIET. Of any single measure in the medical management of a nephrotic child, emphasis should be placed on his diet. We prescribe a high-protein, high carbo-

hydrate, low-fat, low-salt diet given five times daily. The protein offered varies between 3 and 4 Gm. to a kg. of non-edematous body weight each day. By a low-salt diet is meant a diet without additional salt. In an effort to decrease salt intake, dialyzed milk has been used to replace skimmed milk. These patients who have been unable to eat a high-protein diet without additional salt have been allowed to have a reasonable amount of salt added to their food. No ill-effects have been experienced from this procedure.

The question of limiting or not limiting fluid intake has not been answered scientifically. It is our practice to allow the patient to take as much as he wants. Spontaneous diuresis has occurred in many of our patients in spite of unlimited fluid intake.

One to two times the daily minimum requirements of vitamins should be provided. Our experience with the use of choline, based on experimental evidence that it is necessary for fat metabolism, and with the use of pyridoxine, based on experimental evidence that it is necessary for protein metabolism, has been dis-

appointing. The use of amino acids orally offers a means of providing the nephrotic patient with extra amounts of these protein-building substances.

BLOOD, BLOOD FRACTIONS AND RELATED SUBSTANCES. Iron compounds orally or intravenously and liver injections have been ineffective in correcting anemia; transfusions of whole blood or concentrated red cells are indicated in correcting the anemia. At present, we are using plasma, not as an agent to correct hypoproteinemia but as a source of protein during periods of anorexia, vomiting and diarrhea.

More recently, the use of concentrated low-salt, human serum albumin has received much attention in investigative studies as an agent for correcting hypoproteinemia and inducing diuresis. Twenty-five grams of this substance are osmotically equivalent to 500 cc. of plasma. Published and unpublished reports throughout the country vary in enthusiasm about its effect in correcting hypoproteinemia, but the consensus is that it is a relatively safe and effective but expensive diuretic.

In recent years the use of acacia is again being advocated. We have not used acacia since 1935 and strongly recommend against its use. We have avoided the use of gelatin solutions intra-

venously for fear of obtaining complications similar to those experienced with acacia.

Recently, Strumia and his co-workers reported on the use of globin and its diuretic effect in chronic nephritis. Twenty-four grams of globin are osmotically equivalent to 600 cc. of plasma. Their report is encouraging. The author knows of no cases of nephrosis treated with globin.

Diuretics such as urea, ammonium chloride, mercurials, hypertonic sucrose, and xanthines are usually ineffective in inducing diuresis. Furthermore, mercurials and hypertonic sucrose are harmful to the kidney tubules and are contraindicated during periods of oliguria and anuria.

THYROID PREPARATIONS. A low basal metabolic rate and hypercholesterolemia are constant findings in nephrosis and in hypothyroidism. The low basal metabolic rate is presumably on the basis of malnutrition. We have used amazingly high doses of thyroid to the point of inducing symptoms and signs of overdosage with thoroughly disappointing results. We have discontinued its use.

INTERCURRENT INFECTION AND FOCI OF INFECTION. Pneumococci, staphylococci, and streptococci are the most common secondary invaders. Pneumococci have been cultured from the nose

and throat so often that some workers have theorized that they are in some way related to the cause of nephrosis. Before the era of sulfonamides and antibiotics, peritonitis, septicemia, and pneumonia were common causes of death. Since the advent of these drugs, the mortality rate from these infections has dropped considerably. Dosages of these drugs are not different from those used in other children with infections by the same organisms.

Paradoxically, almost every type of intercurrent infection at one time or another has been reported to have favorably modified the course of, or cured a child with nephrosis. Of these infections, measles appears to be the most outstanding. Blumberg and Cassaday recently stated that infection with measles had been more effective in causing a remission of nephrosis than any therapeutic agent that they had used. There is no doubt that these remarkable remissions have occurred, for we have seen them occur in our cases. Nevertheless, some of the patients have died from complications during or after their infection with measles. It is the author's opinion that inoculation with measles as a therapeutic agent is not justified even when the disease is modified with gamma globulin.

Upper respiratory infections

occur rather frequently and easily. The mild infections should be left untreated. The more severe infections should be treated adequately with chemotherapeutic agents and antibiotics.

Diarrhea occurs fairly frequently, especially during periods of increasing edema and oliguria. Whether or not diarrhea is a compensatory mechanism whereby edema fluid is removed is a question open to speculation. As a safeguard, we have isolated every patient developing diarrhea, although we have yet to culture pathogenic organisms from the stools. Treatment is usually unnecessary except in those with specific diarrhea.

The removal of foci of infection has received great emphasis in the past. We have been treating foci of infection without anticipating any improvement of the disease but only as a step toward improving the general condition of the patient and preventing the progress of a focus into something of major concern.

THE NEPHROTIC CRISIS. The nephrotic crisis is characterized by sudden fever, anorexia, nausea and vomiting, chest and abdominal pains, erysipeloid lesions, oliguria, increasing edema and prostration. Although in a great number of instances no infectious agent can be demonstrated, we treat a crisis as if it were an

intercurrent infection using a specific drug whenever a causative agent is isolated and either a sulfonamide or penicillin in a crisis where no cause is found. Supportive treatment consists of the intravenous administration of 5% amino acids in 5% glucose several times daily, blood transfusions if indicated, paracentesis and thoracentesis if indicated, and the use of an oxygen tent if indicated by cyanosis or respiratory distress. One of our patients recently became practically anuric during a crisis, edema developed rapidly, and ascites and hydrothorax became marked. Suddenly, convulsions occurred and the patient became comatose. Cerebral edema was diagnosed. Within the course of two hours, an abdominal paracentesis, bilat-

eral thoracentesis, and a lumbar puncture were performed. On the next day he was sitting up in bed, talking and feeding himself.

During periods of crisis and marked edema, subcutaneous drainage of fluid by skin incision is very rarely, if ever, necessary. The procedure is simple, but the possibility of infection is a strong contraindication.

Frequently, a nephrotic crisis will simulate acute appendicitis or intestinal obstruction or some other acute surgical condition. Conservative management of all crises simulating these complications should be followed until a diagnosis is fairly certain. The child in a crisis deserves every supportive measure for his welfare to carry him through the few days of a crisis.

KAE:KOE



STATEMENT OF DR. THOMAS PARRAN, SURGEON GENERAL, UNITED STATES PUBLIC HEALTH SERVICE

The President is to be congratulated on his appointment of Dr. Leonard A. Scheele as Surgeon General of the United States Public Health Service. Doctor Scheele is one of the outstanding figures in public health in this country. He possesses both the professional and personal qualifications to be a great Surgeon General. I wish for him long years of useful public service in this responsible position. I have no plans for the future. I shall be at the disposal of my Commander in Chief and the new Surgeon General.—Release, U. S. P. H. S., Washington, D. C.

PROCAINE PENICILLIN G (DURACILLIN): A NEW SALT OF PENICILLIN WHICH PROLONGS THE ACTION OF PENICILLIN

By Wallace E. Herrell, M. D., Donald R. Nichols, M. D.,
and Fordyce R. Heilman, M. D.

Condensed from the Proceedings of the Staff Meetings of the Mayo Clinic

NUMEROUS preparations of penicillin as well as a variety of procedures have been employed in an effort to prolong the effective concentration of penicillin in the blood. The method that has been most commonly used to date consists of the intramuscular injection of penicillin calcium in beeswax and peanut oil. While this method has proved satisfactory, it has some disadvantages. Beeswax may not be completely absorbed in all instances. Likewise, some patients are sensitive to peanut oil. In many cases the injection of the penicillin, peanut oil and beeswax mixture results in pain and soreness at the site of the injection. Furthermore, severe, delayed local reactions occur at times.

In the search for other methods of prolonging the effective concentration of penicillin in the blood we have recently had occasion to examine a preparation of penicillin which appears to be promising. The preparation is a procaine salt of peni-

cillin G (duracillin) which was prepared in the research laboratories of Eli Lilly and Company.

At first, we used a suspension of procaine penicillin G in cottonseed oil. Each cubic centimeter of this suspension contained 300,000 units of penicillin and 125 mg. of procaine. We later used a similar suspension of procaine penicillin in sesame oil. We have found that this preparation is superior.

In order to determine the toxicity of this preparation, 1,000 units of the preparation in 0.5 cc. of saline solution were injected into each of fifteen mice. This dose failed to produce any evidence of toxicity. Furthermore, no untoward symptoms were observed after as much as 150,000 units of procaine penicillin in cottonseed oil had been injected into dogs.

In ten cases in which there was no evidence of impairment of renal function, we administered a single intramuscular

injection of the oil suspension of this substance which contained 300,000 units of penicillin per cubic centimeter. If the ampule containing the stock solution is warmed by holding it in the hand, the material flows readily. Since procaine penicillin has a tendency to separate from the oil used in the suspension, it is necessary to shake the ampule vigorously while holding it in the hand. It is important not to massage the site of injection.

In all cases samples of blood were obtained approximately every three hours for a period of 24 hours, beginning 3 hours after the first injection was administered. In a few instances, examination disclosed an effective concentration of penicillin in the blood 27 and 30 hours after the patient had received the intramuscular injection of 1 cc. of the suspension. An effective therapeutic concentration of penicillin in the blood is easily obtained for at least twenty-four hours when this material is used.

Except for the slight amount

of pain incident to making the intramuscular injection, in no instance has there been any evidence of local irritation and soreness or pain after the injection of this material. This suggests that the procaine has a twofold effect: (1) it prolongs the action of the penicillin and (2) it has an anesthetic effect.

In addition to the studies which we have described, the oil suspension of procaine penicillin has been used in the treatment of ten additional patients suffering from a variety of infections. The results were the same as those which would be expected if any other form of adequate penicillin therapy had been employed. The conditions treated included septic sore throat, pneumonia and infections of the skin and soft tissues such as lymphangitis, carbuncle and so forth. In this group of cases, no toxic reactions have been encountered. More extensive clinical studies are under way and will form the basis of a subsequent report.

KAE:KOE



¶ Disease generally begins that equality which death completes.—*Samuel Johnson*

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DIGEST OF TREATMENT

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WHAT TO DO IN A REBELLIOUS CASE OF MIGRAINE: A LIST OF THE DRUGS BEING USED TODAY

By Walter C. Alvarez, M.D.

Condensed from Gastroenterology

MIGRAINE is one of the common diseases seen by the gastro-enterologist but, sad to relate, he often fails to suspect what is wrong. As a result, the correct diagnosis with all its enlightening implications is not made. The trouble is that the migrainous woman usually fails to tell her story properly; she says never a word about the typical headaches and complains only of her abdominal distresses, her nausea or vomiting, her vertigo, her severe fatigue her many illnesses and perhaps the poor results of her operations. She may not mention the headaches perhaps because she feels from her experience that they are beyond medical help, or they lost their severity some years before, or because she is ashamed of them. Without mention of the headaches she tells a story so vague that no one could possibly make a diagnosis from it, and this is unfortunate because the diagnosis of migraine can be made only from the history.

This being the case, the only physician who is likely ever to guess what is really wrong with the woman and to help her will be the one who suspects from her appearance, her mental and spiritual make-up and her story, that she is a migrainous person, and then goes ahead to dig out the typical history. The securing of a history of migraine in the family can be helpful, as is also a history of a scintillating scotoma and of good relief during pregnancies.

Now why is it so important to know that a woman is migrainous? Because so commonly the inherited peculiarity of the nervous system and whole body which goes with this disease and underlies it can explain all the hypersensitiveness, the nervousness and tenseness, the frailness, the frequent illnesses, the occasional spells of dizziness, the nausea, vomiting or abdominal pain and the days when the woman is a bit depressed and detached from the world. Many a time the physician's

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discovery that a woman with an uncomfortable digestive tract is migrainous will keep him from ordering what will almost certainly be a futile abdominal exploration. Knowing her tendencies, he will be the more likely to ask and to learn that the provoking causes of most of her bad spells of abdominal distress are fatigue, tension, some happening out of the usual routine, or some unhappiness, worry, exposure to glaring lights, the entertainment of guests or the going on a journey.

TREATMENT DESIGNED TO ABORT ATTACKS. In spite of the fact that for 25 years injections of gotamine tartrate or gynergen have been stopping attacks of migraine in perhaps 90% of the cases in which this drug is used, it is still unknown to many of those persons who suffer tortures with this disease. Many physicians who know of the drug dislike to use it because of their fear that gangrene of the legs may result. Actually there are only a few cases on record in which ergotamine tartrate has produced gangrene and these were not cases of migraine but cases of severe jaundice and itching which led to the use of the drug in large doses sev-

eral times a day. In 25 years of prescribing this substance for migraine I have never seen or heard of a patient who suffered from gangrene, and I have never seen or heard of a patient who suffered from gangrene, and I have seen only five or six cases in which the patients had enough numbness after each injection so that it seemed wise to stop or occasionally to interrupt the use of the drug. The persons who had such numbness appeared to have an idiosyncrasy to the substance.

Because the injection works best when taken at the beginning of an attack and since attacks often start in the early morning hours the patient should have her own hypodermic syringe and should be taught how to use it and keep it sterile.

For those physicians who still fear gynergen and for those migrainous persons who hate to use it, because before it relieves them, it causes vomiting or feelings of numbness or jitteriness, a new and less toxic drug—dihydroergotamine (D.H.E. 45, Sandoz)—has recently come on the market. It is put up in ampules of 1 cc., and this is a sufficient dose for most persons. It is

only about a fourth as toxic as ergotamine, and in the several years in which I have been giving it I have seen only three persons who complained that it produced discomfort. In most cases the drug works well but in some it does not contract the arteries sufficiently to stop the attack. The dose can perhaps then be repeated with advantage. Always this drug and any drug will work best if given promptly at the first sign of an attack.

In some cases the breathing of pure oxygen for an hour or two helps the patient with an attack of migraine. In others a rectal suppository of 3 gs. (0.2 Gm.) of nembutal will stop nausea and vomiting and will cause the patient to sleep off the attack. The drug is given by suppository because after nausea comes, the stomach is not likely to absorb much. Naturally in mild cases, pain relieving drugs such as aspirin or codein or sedatives such as bromural if taken quickly may stop an attack. Usually it is useless to take any drug by mouth after be absorbed. Some persons, nausea sets in, since it will not be absorbed. Some persons, especially when vomiting se-

verely and much nauseated, can be greatly helped by taking an intramuscular injection of perhaps 3-¾ or 7-½ grs. of sodium amytal.

DRUGS AND PROCEDURES THAT CAN BE TRIED IN AN EFFORT TO AVOID ATTACKS.—No one can hope to cure migraine in any way because the tendency to it is built before birth into the brain and the whole personality. In perhaps most cases, severe migraine is best relieved if the physician can help the patient to avoid strain, worry, annoyance or overwork and to get rest and mental peace and acquiescence.

I have little faith in most of the treatments to be listed, but when a patient and his or her physician are desperate they will want to try something, and the drugs here listed have all been written up as sure to cure a high percentage of migrainous persons. I am sorry to say that although I have tried several of them I have had disappointing results.

The list is as follows:—

1. antuitrin
2. emmenin
3. potassium theocyanate
4. epinephrine
5. caffeine
6. decreased water intake
7. chondroitin sulfuric acid
8. vitamin B₁
9. calcium lactate

10. histamine
11. nicotinic acid
12. octin
13. benadryl
14. ligation of temporal or middle meningeal artery.
15. overcoming unbalance of extra-ocular muscles
16. relief of constipation

Nothing so far has taken the place of a good long rest which lowers the irritability of the brain, sets the trigger coarsely, and makes it hard for the little explosion to go off.

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TAJ:RDD



DIAGNOSTIC ERRORS IN CARCINOMA OF THE LARGE INTESTINE

During a period of a year at the Mayo Clinic 817 patients were studied who had a total of 825 lesions in their colon and rectum. This study indicated that those patients who have carcinoma of the large intestine which can be diagnosed by digital examination are likely to be treated for some condition unrelated to the carcinoma.

Of this group, 634, or 77.6%, had carcinoma in the terminal portion of the bowel; 70% of this group had lesions palpable on digital examination. One-fourth of these patients had received treatment during the course of their symptoms for other conditions than the carcinoma.

An additional 132 patients, or 16.2%, had lesions of the lower bowel visible by sigmoidoscopy, and 232 additional patients had higher lesions which were diagnosed by X-ray. The remaining 9 patients had lesions diagnosed only at surgical abdominal exploration.—*R. J. Jackman, H. A. Neibling, and J. M. Waugh, Condensed from an abstract from J. A. M. A., August 16, 1947: 1287-1289, 1947.—Proceedings of the Staff Meetings of the Mayo Clinic, October 1, 22: 447-450, 1947.*

LKF:CBH



Illness makes a man a scoundrel.—*Samuel Johnson*

THE PHARMACOLOGY OF NEW DRUGS IN PEDIATRIC PRACTICE

By Clinton H. Thienes, M.D., Ph.D.

Condensed from Californic Medicine

THIS is a review of several of the recently introduced drugs which are of probable use to the pediatrician. Only the relation of the pharmacologic data to clinical experience will be pointed out.

ANTI-HISTAMINIC DRUGS.

Benadryl and pyribenzamine have been found to antagonize almost every effect of histamine: these include the hypotensive action, production of skin wheals, and increase in salivary flow. The antihistaminic action seems to be based upon a competition between the drug and histamine for attachment to some cellular constituent, probably an enzyme, which is activated by unopposed histamine.

Clinical experience with these two drugs is surprisingly at variance with laboratory experience. The anticipated value in treatment of asthma did not materialize, for not more than one-fourth of the cases of asthma are relieved by use of these drugs. On the other hand, in the laboratory there is only partial protection against histamine-produced

urticaria, while clinically these drugs exhibit their most powerful effects against acute urticaria and angioneurotic edema. Both drugs tend to depress the central nervous system in patients, and to lower the leukocyte count.

PRIVINE. Privine hydrochloride was scarcely known to pharmacologists before it had had extensive clinical trial. It seems to combine sympathicotropic (adrenergic), parasympathicotropic (cholinergic) and musculotropic actions. It elevates blood pressure. It differs from amphetamine and ephedrine in that repeated intravenous doses continue to produce their pressor effects. Other sympathomimetic effects of Privine are vasoconstriction of nasal mucosa, mydriasis, and inhibition of intestinal motility.

BAL. British investigators found in dimercapto-propanol an agent effective against the arsenical blister gas, lewisite. Since this discovery, the substance has been known as British anti-lewisite, or briefly, BAL. The dose is 0.025 cc. of the 10% solution in oil (2.5

mg.) per K8 of body weight. This is administered every 4 hours the first day or two, and then 2 injections per day are given for 10 days or until recovery is complete.

After its protection against arsenical poisoning associated with lewisite became known, BAL was tested as an antidote against various arsenicals, including arsphenamine and oxophenarsine, and was found to be clinically effective against poisoning by antiluetic drugs. In addition, BAL is highly effective against mercury. It seems to be of some value against therapeutic poisoning by gold salts.

Though the exact mode of action of BAL has not been determined, it appears to inactivate absorbed arsenic or mercury, and to hasten their excretion. Side-effects are generally not serious; when they do occur they consist of giddiness, sweating, nausea and headache.

SULFAMETHAZINE. This sulfonamide is the most rapidly absorbed and most slowly acetylated and excreted of the series. Thus the therapeutic concentration of sulfamethazine in the blood is reached more quickly and is more prolonged; and the incidence of

crystalluria is reduced. The antibacterial potency seems to be equal to that of sulfadiazine, and its clinical toxicity no greater.

CURARE. This South American arrow poison, when refined, has proved to be of practical value in reducing the dangers of metrazol and of electroshock therapy. It is also useful in bringing about muscular relaxation during anesthesia, and in reducing spasticity in poliomyelitis and in spastic paralyzes caused by upper motor neurone lesions. One of the most active alkaloids of curare, d-tubocurarine, has been synthesized and is now available for clinical use.

Curare alkaloids have two types of pharmacologic effect—production of strychnine-like convulsions, and myoneural junction paralysis. With preparations employed clinically, only the paralytic effect is seen. By careful adjustment of dose, undesired muscular tension can be diminished or abolished. Neostigmine opposes the paralytic effect at the myoneural junction, by interfering with the destruction of acetylcholine.

In anesthesia and as a corrective in shock therapy, cu-

rare is administered intravenously. The action develops within a few seconds, and because of individual variation in susceptibility, the injection should be made over a period of 30 to 90 seconds. Duration of action is 15 to 90 minutes. In the treatment of spastic diseases, d-tubocurarine hydrochloride is suspended in oil and wax, in a 3% concentration. This suspension is administered intramuscularly or subcutaneously in a dose of 0.4 to 2.5 cc. two to four times weekly.

TYROTHRICIN. This preparation is obtained from soil bacteria. It is poorly absorbed from the gastro-intestinal tract, as well as from wound surfaces and mucous membranes. Because of its toxicity from parenteral injection, tyrothricin can only be used locally, for irrigating and as a wet dressing for infected surfaces. Open, infected wounds respond well to treatment with this drug.

STREPTOMYCIN. This is obtained from *Streptomyces griseus*; it is usually dispensed in the form of its hydrochloride.

It is practically non-absorbable from the alimentary tract, but is well absorbed when injected intramuscularly. Excretion is rapid, so that injections every 2 to 4 hours are necessary. The usual daily dose varies from 0.3 gm. to 1.0 gm.

Since the auditory apparatus, especially the eighth nerve, is sensitive to streptomycin, a partial or complete deafness frequently develops.

Streptomycin is effective in tularemia, and to infections caused by *Hemophilus influenzae*, *Eberthella coli*, *Proteus vulgaris*, *Klebsiella pneumoniae*, *Acrobacter aerogenes*, *Pseudomonas aeruginosa*, and the various *Salmonellae*. Urinary-tract infections, meningitis, peritonitis, or bacteremia caused by those organisms often respond well to streptomycin.

The tubercle bacillus is quite susceptible *in vitro* to streptomycin. The greatest benefits from its clinical use so far have been in miliary tuberculosis, and in localized lesions of the upper respiratory tract.

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MULTIPLE SCLEROSIS

Diagnosis and Treatment

Condensed from the Journal of the American Medical Association

ORDINARILY, the diagnosis of multiple sclerosis cannot be made unless there is evidence of more than one lesion or unless there are confirmatory findings in the spinal fluid, but characteristic symptoms such as retrobulbar neuritis with central scotoma, symptoms of acute transverse myelitis, diolopia or blurred vision or weakness or numbness of one extremity, if transient, create a presumption for the diagnosis. This presumption is strengthened if one or more of the common physical findings is present, such as palsy of one of the oculomotor nerves, nystagmus, slight ataxia of the arms, absent abdominal reflexes or Babinski or Oppenheim signs.

In addition to the foregoing manifestations, the following are frequently found: difficulty in speech, monoparesis or hemiparesis, spastic paraplegia, spastic-ataxic gait, vertigo, intention tremor, frequency and urgency of urination, impotence, constipation, girdle sensations and other paresthesias, loss of vibration and position sense and general weakness.

Some type of alteration in the spinal fluid is found in about

70% of cases. These include a moderate increase of cells (10 to 100), increase of total protein and alterations in the gold-sol curve.

Multiple sclerosis usually begins between the ages of 20 and 40 but is not excluded by an onset before or after these limits.

A steadily progressing disability or one limited to the lower extremities calls for caution in diagnosis. In doubtful cases neurosyphilis, neoplasm, subacute combined sclerosis and hereditary ataxia must be considered.

When the sensory symptoms are decidedly pronounced, hysteria is occasionally mistakenly diagnosed.

TREATMENT

There is no agreement among neurologists in regard to the cause of multiple sclerosis; hence, no specific treatment directed at its cause is generally accepted.

1. **MORALE BUILDING.** Inasmuch as there is no satisfactory specific treatment for multiple sclerosis the physician must approach the problem somewhat obliquely. The physician who has responsibility for therapy is confronted by a double problem of

treating the disease itself and treating the patient, or, more precisely, treating the problem which the disease represents to the patient. The problem is to aid the patient to deal with the disease in an effective manner. After a good patient-physician relationship has been established palliative drugs may have beneficial value out of all proportion to the value of the drug itself. This good relationship is easy to establish, for the patient is seeking frantically for some understanding person who is willing to listen to his problem. The function of the physician is to listen in an understanding way and to give a minimum of directive advice. The physician should rather assist the patient to arrive at his own conclusions. By sympathetic listening the physician helps the patient bring into sharper focus his own plans for dealing with the illness in a constructive way.

II. AVOIDANCE OF PRECIPITATING FACTORS. The usual list of circumstances which may precipitate attacks is as follows: infections, unfavorable climate, pregnancy, fatigue, poor nutrition, emotional disturbances and chilling.

The effect of acute infections, such as the common respiratory infections, boils, and paronychias, is often striking. In every case a search for foci of infection, such

as sinusitis, tonsillitis, infected teeth and prostatitis, should be instituted and the focus dealt with if possible.

Multiple sclerosis appears to be a disease of cold, damp climates. Patients who move from an unfavorable climate to a mild, dry one such as exists in the Southwestern area of the United States (Arizona, Northern Texas, New Mexico, Colorado, Southern California) are often relatively free from acute relapses and may go into a remission.

The onset of multiple sclerosis, or relapses, are precipitated in about 40% of female patients who become pregnant.

Severe reducing diets, carbohydrate "sprees" and other dietary vagaries sometimes seem to have a disadvantageous effect. There is, however, no good evidence that any specific dietary factor—e.g., presence of vitamins—has a bearing on the disease.

III. REHABILITATION AND SYMPTOMATIC TREATMENT. The methods useful in disabilities which limit motions at the joints, weakness, spasticity, rigidity and incoordination of muscles are the physical modalities heat, water, massage and therapeutic exercise. Therefore the use of physical and occupational therapy and rehabilitation procedures is useful in the symptomatic treatment of multiple sclerosis.

OTHER FORMS OF SYMPTOMATIC TREATMENT. In cases in which spasticity is associated with good voluntary power, curare therapy along with adequate re-education may yield striking rehabilitative results. Two types of drugs are in use: aqueous tubocurarine, which is a crystalline derivative of crude curare, and a suspension of d-tubocurarine chloride in oil and wax. Curare is, of course, a potentially dangerous drug, and several deaths have been attributed to its use. It should be prescribed only by physicians who have had experience with its actions, and a supply of neostigmine, its physiologic antidote, should be kept available.

Neostigmine has been used much in the manner recommended for curare. This is curious, because the two drugs have pharmacologically opposed actions.

Various drugs, such as amphetamine, dextro-amphetamine ("dexedrine"), diphenhydramine ("benadryl") and tripeleennamine ("pyribenzamine") have been used in the treatment of chronic cases and have occasionally appeared to give symptomatic relief.

Vitamins have been extensively used. In some cases they seem to have a tonic effect, and their use is definitely indicated if any

signs of actual deficiency, such as redness of the tongue, rhagades, anemia and dryness of the skin and hair, appear. They do not appear to have any specific effect on the course of the disease in well nourished patients.

IV. TREATMENTS FOUNDED ON CURRENT THEORIES OF THE DISEASE. The disease has been treated by many antibiotic substances such as arsphenamine and its modifications, "germanin" (suramin sodium U.S.P.), silver salts, iodides and penicillin, but without obvious results. Fever treatment has also been generally abandoned, as has the use of various vaccines.

Based on accumulating evidence which suggests the possibility that vascular obstruction, probably a thrombosis of venules, is a link in the chain of causation of multiple sclerosis, "dicumarol," an anticoagulant, has been used in certain cases. Instruction in the use of "dicumarol" can be obtained from E. R. Squibb & Sons, 745 Fifth Avenue, New York. It must be emphasized that the use of "dicumarol" is still in the experimental stage.

No clearcut and indisputable effects in the course of the disease were observed as the result of orally administered vasodilating drugs over a period. The use of vasodilating drugs as a means of long term treatment is still in

early experimental stages. The drugs now in oral use are aminophylline, "syntropan" N. N. R. and papaverine hydrochloride in tolerance doses.

Histamine is a valuable vasodilator. A great defect in its use in multiple sclerosis is the brevity of the period of vasodilatation. Theoretically, good vasodilation should be maintained 24 hours a day. Histamine may be given as a continuous infusion, but this limits the activity of the patient, a factor which may be disadvantageous if continued over a long period. When employed daily by brief infusion, histamine may be combined with the afore-

named orally administered drugs.

The foregoing information has been prepared by members of and approved by the Medical Advisory Board of the National Multiple Sclerosis Society. It is designed to furnish to physicians the best information available at the present time. The Society will be pleased to give any physician who requests it the benefit of any references where more details can be found and will be glad at all times to furnish any further information that may come to it as to the diagnosis of or the treatment of multiple sclerosis.

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KAE:KOE



VETERANS IN MUSIC

Music groups throughout the country are cooperating with Veterans Administration in conducting a program of music appreciation and participation for patients in VA hospitals and homes, Ray B. Green, chief of music in VA's Special Services, said at a conference of the Music Teachers National Association in Boston, Mass.

Purpose of the VA program, he explained, is to take patients' minds off their illnesses and disabilities and make them more receptive to medical treatment.—*Release, Veterans Administration, Information Service, Washington 25, D. C.*



¶ The greatest sacrifice is the sacrifice of time.
—*Antiphon (Plutarch-Lives: Antony)*

USE OF PENICILLIN IN ACUTE INFECTIONS OF THE HAND

A. L. Webster, Dundee, Scotland

Condensed from the Lancet

A SERIES of 260 unselected cases of acute infections of the hand were treated by 4 different methods. All tendon-sheath infections are not included in this series. A comparison is made with 200 cases from past records in which no penicillin was used.

Surgical treatment included adequate drainage by packing the wound open for 48 hours with gauze impregnated with penicillin cream 100 units per gr. in 3 groups and in the fourth group with sterile soft paraffin.

In group I 40 patients were treated as above and also given 250,000 units daily of intramuscular penicillin in oil and wax. *Staph. aureus* was the organism infecting practically all the wounds.

In group II 47 cases were treated exactly as in group I, except the dosage of penicillin in oil and wax was 125,000 units daily.

In group III 61 cases were treated with aqueous solution of sodium penicillin 200,000 units daily.

In group IV consisting of

112 cases, the surgical treatment was the same, but no penicillin was administered parenterally or used as a local dressing.

Penicillin is useful in the treatment of all acute infections of the hand, except pulp infections, if they are treated before pus is formed. An attempt was made to abort 7 cases of acute infections of the hand with parenteral penicillin and in only 3 cases was it successful. The best treatment after pus has formed is adequate surgery.

Penicillin in aqueous solution given either preoperatively or postoperatively does not confer any special benefit, except in cases of lymphangitis and lymphadenitis.

Penicillin in oil and beeswax often increases the patient's suffering. This was true in 8 out of 87 cases. Penicillin-sulphathiazole powder as a postoperative dressing for acute infections of the hand is condemned. Sterile soft paraffin gauze was found to be as good as any. It maintains drainage far better than a rub-

ber dam and never obstructs drainage; and when granulations are present they sustain no trauma at the time of dressing.

A useful method was that of the Bunyan bag for the treatment of large superficial infections of the fingers.

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LKF:CBH



NATIONAL BLOOD PROGRAM OF THE AMERICAN RED CROSS

To procure the 3,700,000 pints of blood which authorities estimate as the annual requirement to meet the country's peacetime medical needs, the American Red Cross has launched a National Blood Program.

The first four units of a proposed nationwide chain of blood collection and distribution centers are now in operation. The first regional center opened in Rochester, N. Y., January 12, followed by the inauguration of centers in Wichita, Kans., January 16, Stockton, Calif., February 2, and Atlanta, Ga., February seven-teenth. When the program has reached full development, it will embrace 140 metropolitan centers, 250 centers to serve smaller cities and towns and from 600 to 800 mobile units to operate in outlying suburban and rural areas.

Unlike the Red Cross wartime blood collection activities, when blood was procured for the exclusive use of the armed forces, the new peacetime program will supply blood for patients in civilian, service and veterans hospitals.

In addition to whole blood the new program is designed, in time, to furnish a variety of blood derivatives of proven clinical value. Both whole blood and blood derivatives will be supplied patients without cost.

In addition to serving immediate community needs for blood, the project will provide facilities to meet a major disaster or a national emergency. It will also reinforce the nation's strength by improving and strengthening the people's health.

It is estimated that from three to five years will be required before every section of the country is fully served by the new program.—*American National Red Cross, Washington 13, D. C.*

CONVULSIONS IN CHILDHOOD

By M. G. Peterman, M. D.

Condensed from the Southern Medical Journal

CONVULSIONS present the most alarming and the most serious symptom in pediatric practice. I present herewith the results of my study of convulsions in children, covering a period of 25 years.

Every convulsion indicates a cerebral dysrhythmia which should be investigated before a second one occurs. Each seizure requires individual study and individual treatment.

CLASSIFICATION. There are three major causes of convulsions in children: acute infection (33%), idiopathic epilepsy (26%), and birth hemorrhage or injury (15%). Miscellaneous factors are responsible for the remaining 26%.

Seven per cent of all convulsions occur in the first month of life. Most of these are due to cerebral anoxia, cerebral edema, brain hemorrhage or brain injury. Thirteen per cent of all convulsions occur in the next five months of life; most of these are due to acute infections, tetany, and the residual of brain damage.

Forty-seven per cent of the

convulsions occur between the ages of 6 and 36 months. This is known as the "convulsive age" of childhood. Most of these are caused by acute infection, idiopathic epilepsy, the residual of brain damage, and tetany.

About 27% of convulsions occur between 3 and 10 years of age. Most of these are due to epilepsy, the remainder to acute infection and brain injury residue. Only 6% of convulsions occur between the ages of 10 and 16 years; the great majority of these are due to idiopathic epilepsy.

Therefore the first consideration in the study of a convulsion is the age of the patient. The classification will indicate the probable cause.

HISTORY. An accurate and reliable history inquiring as to the occurrence of convulsions in parents, relatives and siblings, is the most valuable source of information in the entire study. A complete history is well worth any time spent in eliciting information. It is most important to know the details of the delivery and

the reactions of the newborn infant who later develops convulsions. The physical and mental development of this infant must then be studied. His childhood diseases and accidents and his reactions to these events must be evaluated. Such apparent trivialities as the age of holding the head, learning to walk, talk and coordinate activities, difficulty in swallowing solids, chronic constipation, temper tantrums, and breath-holding may easily add up to a probable diagnosis.

CHARACTER OF SEIZURE. The type of convulsion and the premonitory signs must then be studied. Increasing irritability, facial twitching, spasmodic twitches, and hypertonicity indicate tetany. The typical tetanic seizures with carpopedal spasm induced by irritation or stimulation are classical signs of this syndrome. Myoclonic jerks and unilateral seizures with spasticity indicates a brain lesion. The typical petit mal attack, the akinetic spasms, and the grand mal convulsion do not need further description. A mother's intuitive premonition of an impending convulsion is well worth serious consideration.

EXAMINATION. The examination must then begin with a study of posture or position, reaction to noise or stimulation, and a note of the coordination of the extremities. Where possible the neurologic examination should be made when the infant or young child is asleep. An asymmetry of the tendon reflexes is significant, as is a difference in the abdominal reflexes, only if the patient is completely relaxed. Examination of the fundi and determination of blood pressure are just as important in these children as they are in adults.

LABORATORY EXAMINATIONS. Roentgen rays of the skull may reveal unsuspected toxoplasmosis, calcifications or other lesions. Measurements may also establish a hydrocephalus before it is otherwise evident. Every patient with convulsions is entitled to a determination of the fasting blood sugar, a test for syphilis, and a sedimentation rate.

A disturbance of calcium metabolism has long been suspected as a factor in the causation of convulsions. Except in tetany this relationship has never been established.

Every child with convulsions should have an electro-

encephalogram, if possible. A satisfactory EEG will not only establish the diagnosis of epilepsy in 85% of cases, but it will often reveal the potential disorder before the patient has had a clinically recognized seizure. Acute infections or high fevers induce or precipitate the majority of the convulsions of childhood. I believe that the infection or fever is only the trigger mechanism; the basic disorder is epilepsy in two-thirds of these patients. Most of the others have some underlying brain disease or injury.

TREATMENT. The treatment of convulsions must be based entirely upon the suspected cause. The immediate or emergency treatment may be outlined as follows: Do not use opiates; reduce fever with hydrotherapy and antipyretics; give phenobarbital, or general anesthesia if necessary. If a general anesthetic is contraindicated, magnesium sulfate, 10 to 30 cc. of a 50% solution, may be given intravenously or as an enema.

Epilepsy must be classified as to type before treatment is begun. Uncomplicated petit mal will respond in about half

the cases to trimethadione; this drug should be used with caution, as it can cause fatalities or precipitate grand mal convulsions. For grand mal attacks I have found phenobarbital to be the most satisfactory drug. I prefer to use the ketogenic diet for most cases of idiopathic epilepsy, however, as it is effective for both petit mal and grand mal, and is harmful in neither. Diet is totally ineffective for convulsions of organic origin.

Recently I have studied the effect in convulsive patients of sodium 5,5-phenyl thienyl hydantoin (Lilly). Early results have been favorable, and indicate that it be investigated further.

No preparation of phenobarbital or of hydantoin should be discontinued abruptly. If a change is made, the drug in use should be withdrawn gradually as it is being replaced.

I have found Dilantin generally unsatisfactory in children, because of the severity of its side-effects. It is of no value for petit mal, and is not so effective as phenobarbital in grand mal.

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MANAGEMENT OF THE NEPHROTIC SYNDROME

By George E. Farrar, Jr., M.D., Charles F. Sackett, M.D., and Joan H. Long, M.D.

Condensed from the American Practitioner

THE nephrotic syndrome presents a difficult and trying therapeutic problem. Specific treatment is not possible until the etiology is more thoroughly understood. In general, the nephrotic syndrome is the clinical manifestation of protein deficiency with hypoproteinemia, edema (without evidence of congestive heart failure), impaired absorption and utilization of protein, and often a loss of protein as albuminuria.

Treatment has followed several lines: An attempt to increase the colloid osmotic pressure of the blood by the intravenous administration of amino acids, human albumin, plasma, globin, or acacia, as well as by increasing the protein in the diet; an attempt to bring about diuresis by using an acid or neutral ash, low-sodium diet, and the administration of diuretics; and an eradication of foci of infection by drainage and the use of suitable chemotherapeutic or antibiotic agents.

DIET.—An acid-ash, high-protein, low-sodium diet is a simple and satisfactory diet to use for the nephrotic syndrome. Initially there should be six small feed-

ings daily, each feeding consisting of one cup of milk and one egg or two slices of bread or one cup of cereal with butter, sugar, spices, and flavoring as desired. This supplies about 60 Gm. of protein daily. A low-sodium milk powder is available (Lonalac-Mead-Johnson). When the patient is able to eat a full diet, the next and final diet should consist of three to six meals daily, providing at least two or three eggs, a quarter or a half pound of meat, fish, or fowl, and six slices of bread or servings of cereal. These meals should also provide not more than two cups of milk, one cup of vegetables, and one cup of fruits. The following may be eaten as desired: sugar, butter, gelatin (Jell-O), prunes, plums, and cranberries. Coffee and tea may be taken if not otherwise contraindicated. This diet provides 90 to 130 Gm. of protein daily. Food and foodstuffs to be avoided are: salt, soda, salted butter or bread or meat, cheese (except cottage), lima beans, spinach, dates, and raisins.

FLUIDS.—Daily 1,500 cc. or more should be taken by mouth along with the acid-ash diet.

AMINO ACIDS.—Since it is de-

sirable that the daily protein consumption be 2 or even 3 Gm. of protein per kilogram (2.2 lb.) of body weight, it is often necessary to augment the dietary protein intake by means of amino acids. This may be accomplished by 50 to 100 Gm. of a protein hydrolysate (equivalent to 75% protein) orally or intravenously daily. For intravenous injection a 5% solution in 5% dextrose in distilled water is given at a rate of 5 to 20 Gm. of amino acids per hour. In nephrotic crises amino acids intravenously daily are important in addition to penicillin and/or sulfadiazine.

PROTEIN DIURETICS. — SALT-POOR NORMAL HUMAN SERUM ALBUMIN. This is a salt-poor substance that has the same viscosity as whole blood but is osmotically more active. Five grams in 20 cc. of diluent contain only about 0.15 Gm. of sodium chloride and these 20 cc. are equivalent to approximately 100 cc. of plasma. The dose is 25 Gm. (100 cc.) twice daily intravenously given very slowly. A single daily dose of 50 Gm. in 300 cc. or more of 10% dextrose in distilled water intravenously may be given at a rate of 10 to 20 Gm. per hour. Albumin must be given for three to four weeks. In active or incipient congestive heart failure this material must be used very cautiously. Al-

though salt-poor normal human serum albumin parenterally provides the largest amount of protein, it has two important drawbacks—it is not readily available and it is expensive. Unfortunately, a considerable portion is lost in the urine.

NORMAL HUMAN PLASMA. This protein material is less effective than the above because it provides less albumin and contains at least 5 Gm. of sodium chloride per liter. The dose is 750 cc. requiring 1,500 cc. whole blood) to 1,000 cc. daily intravenously.

GLOBIN, modified from human erythrocytes, is used in the same way as albumin and with similar results.

OTHER DIURETICS. — UREA. This may be given in 15-Gm. doses two to four times daily in fruit juice for one to three weeks. It is contraindicated when azotemia is present and during its use weekly determinations of the blood urea nitrogen should be made.

POTASSIUM NITRATE, POTASSIUM CHLORIDE, AMMONIUM CHLORIDE, OR AMMONIUM NITRATE.—Any one of these drugs may be used in 3-Gm. doses three times daily after meals as half-gram enteric coated tablets for three days or longer at a time. With potassium salts the patient should be watched for arrhythmia

and with ammonium salts for acidosis.

DRIED THYROID.—This is to be used in 0.06-Gm. doses daily and may be increased by 0.06 Gm. daily at weekly intervals until diuresis or toxic manifestations occur.

ACACIA.—After diet and diuretics have failed to relieve edema, 500 cc. of 6% acacia and 0.06% sodium chloride in distilled water may be given intravenously slowly on alternate days for three (at the most, six) doses

and 2 cc. of mercurphylline injection (U.S.P.) intravenously on alternate days.

GELATIN OR PECTIN.—These have been used in the same way as acacia.

OTHER MEASURES.—With the recent emphasis on the role of abnormal capillary permeability in the nephrotic syndrome, it has been suggested that rutin may be beneficial. Calcium salts parenterally decrease this abnormal permeability but nitrogen retention may develop.

KAE:KOE



THE THREE MEDICAL FREEDOMS

The doctor asks for three primary freedoms.

The first of these is freedom to use his skill, knowledge and intelligence on behalf of his patient in the clinical sphere. He must be unreservedly at the clinical service of the patient, to investigate, diagnose and treat the patient's disease by whatever means he may decide, traditional or unorthodox, bold or cautious, expensive or cheap.

The second of these is freedom of social action in what he deems to be the interests of his patient. Much modern therapy is, in fact, social or has social implications, and the doctor constantly finds it necessary to seek for a patient rest, a change of work, an improved material environment or some other social privilege.

The third of these is freedom of expression on professional matters. The doctor must be free to speak and write as he thinks fit, not only on more narrowly clinical subjects but on all those other aspects of life which the march of social medicine is showing to be parts of the sum total of man's well-being. Only by absolute freedom of interchange of ideas can medicine grow and fulfill itself. *The Medical Press, February 11, 113, 1948.*

NEW ANALGESIC FOR THE PRACTICE OF OTOLARYNGOLOGY

By Nathan L. Fineberg, M. D., Boston

Condensed from Archives of Otolaryngology

TRICHLOROETHYLENE is valuable in the practice of otolaryngology and rhinoplastic surgery as a pain reliever. It is not only safe but nontoxic. It is quick to produce analgesia, and its effects wear off rapidly. No special apparatus is required. It is pleasant, and there are no irritating effects, local or systemic. The patient also enjoys a sensation of relaxation and well-being. It is a great time saver, and in many cases it saves hospitalization.

The drug is a clear colorless noninflammable liquid possessing an odor something like that of chloroform. It is heavier than water; light and heat cause it to decompose rapidly into acid products. Its wide margin of safety and its low toxicity are demonstrated in the reports from several laboratories.

ADMINISTRATION. One cubic centimeter of trichloroethylene is poured on a surgical sponge, and the patient holds it over his nose, allowing some air to be inhaled with the

fumes. After 15 to 20 inhalations a state of general analgesia is obtained. The patient will tell when she feels "woozy" and has "tingling" sensations in the arms and legs. There may be a generalized feeling of euphoria, sometimes developing into a laugh such as takes place in the early stages of nitrous oxide anesthesia. In children the anesthetic properties accumulate rapidly, so that after 3 or 4 inhalations the patient may become completely relaxed, and no further application of the drug is necessary. This was demonstrated on a child of my family who had to undergo paracentesis of the ear drum. The operator can do whatever is necessary while the patient continues to inhale the fumes. Usually one application is sufficient; however, in some cases more of the solution must be applied to the sponge.

When the sponge is removed, there is complete recovery within two minutes. There are no after-effects, and

an empty stomach prior to the administration is not necessary.

These otolaryngologists who do rhinoplastic operations know that patients fear the injections by which local anesthesia is induced and the postoperative removal of the sutures. Trichloroethylene inhalations dispense with this apprehension. The anesthetic which is injected along the membranous septum, the columella and the lobule is painful and causes sneezing and restlessness on the part of the patient, which is annoying to the operator. Within twenty seconds this drug dispels and discomfort.

During a rhinoplastic operation, when there is excessive bleeding, trichloroethylene perceptibly diminishes the flow of blood. Observations have been made during the removal of nasal polyps. Not only was there good analgesia but temporary hemostasis. Therefore, in a case of excessive bleeding the inhalation of

trichloroethylene would not only induce relaxation on the part of the patient but provide temporary hemostasis during the operation.

Knowing the excellent and instant pain-relieving qualities, the safety and the non-toxicity of this drug, I have used it with good results also in otitis media when paracentesis was indicated.

During the days before the war, when beds and anesthetists were available, patients were sent to the hospital for paracentesis of the ear drum. Today one must do all one can for the patient in the office and at home. Paracentesis can be performed without trouble while the patient administers the drug.

Intranasal puncture of a maxillary sinus of a patient who is under local anesthesia is never comfortable, and the patient invariably complains of pain during the operation. Here again trichloroethylene is useful.

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FOH:RDD



We are so fond of each other because our ailments are the same.—*Swift*

PSYCHOTHERAPY IN GENERAL PRACTICE

By Leslie A. Osborn, M.D., Buffalo, New York

Condensed from the New York State Journal of Medicine

THE medical profession has been reminded forcefully by World War II that it is not prepared adequately to meet its psychiatric responsibilities. All too often psychiatry has been remote from general medical thinking. Illnesses treated in psychiatric hospitals represent late stages of disturbances which originated in the home and the community. Until we learn to deal effectively with the early stages and their etiologic factors, we will see the casualty lists continue to mount.

To obtain early recognition and treatment, psychiatry must move from the hospital to the community, from the specialist to the general practitioner. He is in the community where these things happen; he is in confidential working relationship with patients and families; and he alone can be early enough on the scene to diagnose early difficulties. In most instances the specialist sees patients after the family physician has recognized the nature of the

difficulty and referred them to him for treatment.

This makes it imperative that practicing physicians have an understanding of early diagnosis, factors producing psychiatric disorders, and the means whereby effective therapy and prevention can be accomplished.

In psychiatry the primary pathology lies in the relation between persons; secondary effects on physical health are common. Sociology deals with interaction of these and the group considerations which impinge on individual lives.

For effective psychotherapy, as for any treatment, the foundation must be accurate understanding of the condition being dealt with. The most potent diagnostic means physicians have in psychiatry—perhaps in medicine, too—is a well-taken history. To obtain this, we need to win the confidence of the patient; we need to listen and encourage spontaneous telling of the patient's story; and when questioning is needed, we need to know

what to seek and how to interrogate. This takes time, but it is time well invested. If time is not spent in careful investigation so that early treatment can be instituted, it will be wasted in ineffective and unsatisfactory contacts later. Many neurotic patients give a history of treatment by one doctor after another—sedatives, vitamins, endocrine products, physio-therapy, and reassurance have been given—but a psychoneurosis is a condition in which physical or nervous symptoms are an indirect expression of some difficulty of personal adjustment.

There are three main parts to a psychiatric history. The first is the patient's account, as much as possible given spontaneously, of his difficulty. The second part consists of rebuilding the personal atmosphere in which early and later development of personality took place. The influence of parents and home conditions is very strong. The family physician has the advantage of knowing some of the background already. We are often far too cursory in our inquiry into family history. A family history is not a recital of "Father—55—a & w; Mother—d. 54 diabetes." It is the de-

termination of the experiences the patient had in relation to those who helped—or sometimes did not help—his start in life, and his subsequent dealings with them. In a recent consultation where surgeons had recognized a neurotic basis for complaints of a patient referred in for abdominal operation, the family history was listed as "negative." The patient's parents had separated before she was born; her mother refused to take care of her; she was placed in a foster home, and her foster-father committed suicide when she was nine.

The third part of a psychiatric history is personal. Knowing the general background and the people of most importance in it, a systematic account of the patient's life can be obtained. There are some things patients will tell readily; some they will tell after confidence has overcome reluctance to divulge intimate matters; and some which will come to the patient's consciousness during the process of treatment. If we do not listen, we will not hear any of these. If we are not trustworthy and tactful, we will not hear the second group. If we are not patient and under-

standing, we will not hear the third. Yet the deeper material is the most valuable, diagnostically and therapeutically.

What has just been said about the doctor's attitude determining the extent to which the patient reveals inner difficulties brings us to the point that psychotherapy has already begun when we start investigation. It is not therapy as we construe it pharmacologically or surgically; it is not done with needles or lights or massage. The physician himself by his own interest, maturity, and understanding is the therapeutic agent. What the patient needs and seeks is a wise friend and counselor, one who will respect confidences, not embarrass or laugh at him, one who will help him find a way out of a maze of difficulties and teach him how to avoid getting into such trouble again.

Psychotherapy of the psychoses and severe psychoneuroses is a matter for those with specialist training, as major surgery belongs to the surgeon. There is a great deal of what we might call minor psychotherapy which can best be done by the family doctor. When investigation has indi-

cated that trouble is not too deeply seated, he can proceed with confidence to help the patient to help himself.

Weir Mitchell once said that the most important prescription a doctor ever gives is advice. Advice, however, is a very potent medication, and unsound advice can have decidedly harmful effects. It should never be given lightly, and always the probable effects of the advice if taken should be fully worked out. The best form of advice is that in which the patient works out with the help of the doctor his own idea of what is wisest for him to do. Our function is that of a catalyst, not a reagent.

Psychoneuroses are substitutive reactions; the physical or nervous symptoms are "stand-ins" for some difficulty in adjustment. The patient comes with stomach-ache or insomnia or heart pounding or unreasonable anxiety about health; logically he comes to his doctor and the latter investigates his physical condition. Differential diagnosis must be made between similar symptoms of dissimilar origin, as, for example, between vomiting as an expression of appendicitis and an expression of disgust.

Disproportion between complaint and organic findings may suggest neurosis, but diagnosis by exclusion alone is not enough. The patient does not want to know what is not wrong; he wants to know what is.

Physical examination should not be curtailed because neurotic difficulties exist. One patient who was referred to the psychiatric clinic with digestive complaints had not been x-rayed because of the neurosis; he had a duodenal ulcer.

We often find neurotic patients in situational difficulty, but outer troubles of themselves do not produce neurosis. I am often in situational difficulty on the golf course, and if you put my ball back on the fairway for me I will soon be in trouble again. The expert can get out of trouble much better than I can, but he does not often get into the predicaments I do. So with our neurotic patients. Their difficulties are there, but something within themselves helped get them there, and if we simply remove them from their home or marriage or job we accomplish virtually nothing; we need to help them learn how to play the game of life better, to keep on its fairways, and,

if they do get in its rough or its bunkers, to extricate themselves quickly.

The medical profession cannot ignore the disastrous results of missed diagnosis and inappropriate treatment of psychiatric disorders. We need to recognize the chronic invalidism that the unresolved psychoneurosis represents, and to note the frequency with which operations, heavy sedation, irrelevant medication, and superficially conceived advice have complicated the difficulty while the basic process has continued unchecked. We must recognize the serious fallacy of the statement, "There's nothing wrong with you" or "It's all your imagination." Several years ago a depressed business man went to his doctor and was told after a physical examination there was nothing wrong with him—to go away and forget it. He went away and shot himself. When a patient is within half an hour of threatened death from hemorrhage or shock we do not take it lightly. We need to develop an equally sensitive diagnostic conscience for psychiatric disturbances as we have for organic.

These are but a few aspects of a subject of great clinical

and practical importance. The need for psychiatric service to the community is great and urgent; the small number of specialists we have is grossly unequal to the demand. We must train medical students during their course; we must develop psychiatric services in general hospitals where interchange of knowledge between internist and psychiatrist can take place readily; we must make postgraduate instruction available for those who recog-

nize the need but have not had the basic training.

Medicine has tackled some formidable problems before and come out the winner. As we reduce and finally prevent the tragedies that we call mental and nervous diseases, we will be equaling and perhaps exceeding any of the greatest victories man has yet achieved in his long struggle with the ills that beset his kind.

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SBII:KOE



CORONARY ARTERY DISEASE IN WOMEN UNDER THE AGE OF FORTY

Because of the frequency with which young women complain of precordial pain, the rarity of coronary disease as a possible cause of this symptom in women under 40 is of great diagnostic importance. Of 95,000 women under 40 who were examined at the Mayo Clinic, only 27 were found to have coronary disease, a ratio of 1 to 3,500. Only one patient was under 35 years of age. All of the 27 patients had obesity, hypertension or hyperlipemia and it appears that in the absence of these conditions, coronary disease in women under 40 is practically non-existent.—*Laurentius O. Underdahl and Harry L. Smith, Proceedings of the Staff Meetings of the Mayo Clinic, October 15, 22:479-482, 1947.*

LBL:LBL



¶ Time is the one loan which even a grateful recipient cannot repay.—*Seneca*

BRONCHIECTASIS: TREATMENT AND PREVENTION

By Theodore L. Badger, M.D., Boston, Mass.

Condensed from the New England Journal of Medicine

IT IS of great interest that in the Massachusetts General Hospital series of 400 cases of bronchiectasis, 59% were unsuitable for surgery for one reason or another. The patients not suitable for surgery are those with too much or too little bronchiectasis, those with limited cardiovascular reserve, those with limited pulmonary reserve because of associated emphysema, those with concurrent disease and those who will not submit to surgery. When surgery has been done, follow-up studies indicate that approximately a third of patients operated on still are in poor or only fair condition; in other words, a third of the operated cases subsequently need medical treatment. Thus, it appears that about two thirds of all cases of bronchiectasis, with or without surgery, required medical supervision and care.

The medical management of bronchiectasis is directed toward: mechanical drainage; the control of infection; measures to improve the general

health of the patient; and the prevention of the condition before it occurs.

MECHANICAL DRAINAGE. Postural drainage becomes the most important single mechanical procedure for emptying dependent bronchiectatic cavities of their secretions. For details are essential to its proper execution.

The first is position. Postural drainage can best be carried out from a high bed or table with complete vertical dependence of the trunk, with both hands on the floor and with a basin conveniently placed for expectoration. Clumsiness and occasionally weakness and dizziness may accompany the first efforts at treatment, but patients soon accommodate themselves to its use so effectively that it becomes routine. Patients at work who can not find a convenient bed or table for postural drainage can, in the seclusion of a lavatory, substitute the grotesque and somewhat humorous position of flexion at the waist, with the

knees slightly bent, the head far down, the buttocks as high as possible and the hands grasped behind the knees. This provides a fairly effective substitute form of postural drainage. Secondly, for the best results in postural drainage, the thinning of stagnant secretions becomes essential for their mechanical removal. Many shotgun expectorants are available, but the most effective are iodides, ordinary steam inhalations, ammonium chloride and creosote. Depressants with morphine derivations should be avoided if possible, since they become habit forming and reduce expulsion of secretions, facilitating retention in the lung. Thirdly, bronchodilators such as adrenalin, ephedrine, Aminophylline and mucosal vasoconstrictors like Neo-Synephrine inhaled judiciously through a nebulizer with oxygen under pressure, or by a hand-bulb method, may greatly facilitate the loosening of secretions for postural drainage. And fourthly, deep expiratory and very deep inspiratory breathing before and during postural drainage may help the emptying of deep secretions. The frequency of performing postural drainage

is a matter of individual trial and error. The timetable may be every two hours, or once a day, but should be often enough to keep the sacculations as free as possible from secretions. There may be long periods when drainage is unnecessary.

Bronchoscopy remains an important procedure in the handling of bronchiectasis, and a necessary one in cases presented for surgery.

CONTROL OF INFECTION. Chemotherapy in any form has so far provided no cure for bronchiectasis, but its judicious use in conjunction with mechanical drainage can make life bearable for many patients with severe bronchiectasis.

Both inhalation and intramuscular administration of penicillin have earned their place singly and simultaneously in the medical treatment of this disease. The purpose of inhalation is the direct application of the drug to the bronchial walls and to the secretions of the sacular dilations. Absorption by the respiratory route alone is not adequate to take care of deep-seated pulmonary suppuration. Penicillin by inhalation should not be expected to

reach deep into bronchi obstructed by thick secretions. Therefore, well executed postural drainage should precede the use of penicillin aerosol. If necessary, inhalation or injection of bronchodilators may be used with postural drainage in the first days of acute attacks.

The use of penicillin by whatever route in this chronic disease marked by exacerbations of symptoms must be considered temporary. Its value is dependent on the suppression of sensitive organisms, and its usefulness wears off in two to four weeks.

At present, studies point toward the usefulness of sulfadiazine in daily doses of 1 Gm. for many months. But in the long-term use of sulfadiazine even non-allergic patients must be guarded carefully against sensitivities.

Intercurrent infections of virus type, like the common cold, gripe, influenza and virus pneumonias, commonly excite otherwise quiescent bronchiectasis into acute exacerbations. Inhalation of penicillin or sulfadiazine at the beginning of such infections, although known to be ineffective against the virus, has in my experience been valuable

in preventing secondary invaders and serious reactivation of existing bronchiectasis.

The influence of sinusitis on bronchiectasis and vice versa is often seen by the clearing of infection in either one followed by beneficial effects upon the other. But sinus disease is closely linked to individual susceptibility to infection, and conservative care of sinusitis with chemotherapy deserves a trial. So too with the mouth; all infections of the teeth and gums need meticulous care.

IMPROVEMENT OF GENERAL HEALTH AND HYGIENE. Patients with bronchiectasis must learn to live with their disease and to make the adjustments that are essential to their well-being. Like the patient with valvular heart disease who must avoid competitive sports and severe exertion, the patient with bronchiectasis must protect himself against respiratory infections and take good care of those that come his way. Good nutrition is important in the control of any chronic infection. Its specificity, however, is hard to define. Smoking may aggravate a respiratory mucosa already inflamed with basal infection, especially in pa-

tients sensitive to nicotine. Avoidance of exposure to cold and wet and sleeping in warm fresh air, rather than freezing cold drafty rooms, are of value to those who are sensitive to acute respiratory diseases. Change of climate to higher inland areas away from the seaboard may contribute to the well-being of patients with more serious disease.

PREVENTION. Knowledge of the cause and pathogenesis of bronchiectasis has contributed greatly to understanding of its clinical picture. It has been shown that 65% of all cases develop in the first two decades of life and that bronchiectasis is the leading cause of hemoptysis and pulmonary hemorrhage in that age period. Thus, two thirds of the problem of prevention is in the hands of those physicians who care for children.

Prevention takes two major directions. The first is early diagnosis of bacterial pneumonias, with adequate chemotherapy. The second is re-expansion of atelectases that persist after pneumonias and acute respiratory infections, especially in children.

The unresolved pneumonias, the continued or recurrent

coughs with low-grade fever and the lasting physical signs that follow acute respiratory disease may mask or may be the signs of remaining atelectasis of small bronchioles or lobules of the lung. Deep-breathing exercises of the affected side—forced expansion of the chest hourly against the pressure of a hand placed over the pneumonic area—may be begun immediately after the acute phase has subsided. This method, used in conjunction with expectorants and postural drainage, may be sufficient to expel obstructing bronchial plugs and re-expand residual atelectases. X-ray evidence of definite collapse that does not clear with these simple measures indicates the need for bronchoscopy for aspiration of the mucous plug.

A further step in the field of prevention of bronchiectasis is the prompt removal of aspirated foreign bodies and of benign endobronchial tumors before permanent bronchial damage has occurred. The early diagnosis of lung abscess, with active chemotherapy and early surgery if necessary, should prevent the bronchiectasis that commonly follows it.

THE TREATMENT OF HYPERTENSION

Editorial condensed from the Journal of the American Medical Association

FOR THE past two years patients from many parts of the United States have sought relief from hypertension in North Carolina, where they followed the so-called rice diet. Some have returned with unaltered blood pressure and an intense aversion to dietary management, but many others have returned to their homes with reduced blood pressure, improved vision, smaller cardiac silhouettes and a determination to remain on a diet low in protein and salt.

A recent study confirms older work on the use of a low salt regimen for heart failure and hypertension. A diet with 200 mg. of sodium and 70 Gm. of protein per day led to a fall of 20 mm. of mercury or more in the diastolic pressure of 58% of ambulatory patients who stayed on the diet for weeks or months. The best results reported for splanchnicectomy showed a similar fall in 61% of the cases. Physicians should test the value of sodium depletion, without protein restriction, in any hypertensive patient whose disabilities seem to warrant splanchnic section.

Splanchnic section has an operative mortality and a considerable postoperative morbidity.

Postural hypotension may be more disabling than the preoperative symptoms. Sodium depletion also has a morbidity and even a mortality. Weakness, nausea and muscle cramps may ensue before a satisfactory fall in pressure has occurred. In cases with severe retinal and renal vascular disease uremia may be precipitated; it may occur even though the rice diet, with its low protein content, is used.

Persons who have been on the usual American diet, which contains 5 to 8 Gm. of sodium (12 to 20 Gm. of salt) must follow the low salt regimen for weeks before its effect on blood pressure can be evaluated. Since patients with severe vascular disease or chronic nephritis may lose 600 to 800 mg. of sodium in the urine alone as against 40 mg. lost by others with hypertension, a state similar to Addison's disease occurs when the salt intake is reduced. Not only the patient's symptoms but the blood urea level must be followed carefully at the start of a regimen of sodium depletion for chronic hypertension with vascular damage.

Reaser and Burch, using radioactive isotopes, have confirmed earlier evidence that mercurial

diuretics greatly increase the urinary loss of sodium. The sodium diuresis precedes water diuresis by two to four hours, and sodium excretion per day may be increased sevenfold while water excretion is merely doubled. In persons with hypertension and in instances of heart failure with pulmonary congestion but without peripheral edema, mercurial diuretics may be helpful in hastening the loss of sodium or in permitting a somewhat more liberal diet. One dose of a mercurial diuretic may rob an edema-free patient of 4,000 mg. of sodium, and in edema the total loss in a week after one dose may be 15,000 mg. Thus, two injections of a mercury compound in a week can more than make up for the difference in salt obtained from a rice diet and from one with a wider choice of unsalted foods.

In most cases hypertensive patients with normal blood urea levels can be safely tried on sodium depletion, using diet and mercurials for three weeks at least and pushing the therapy, as one does digitalis, until the desired result is effected or undesirable symptoms occur. If a fall in pressure does not result, dietary restriction is not likely to have any value for that patient; if the pressure falls a regimen must be worked out which will maintain

the sodium depletion. Renal impairment may make protein restriction imperative; then rice should be used as the main source of calories and protein, for Sure has shown it to be 2.5 times as effective, per Gm. of protein, as is wheat in maintaining the growth of young animals. On no other regimen do patients come into nitrogen equilibrium at such a low protein intake. Fruit juices, rich in potassium, should not be given freely in uremia, but fluid up to 2 or even 3 liters per day may be used during salt restriction without fear of edema as a result.

Many patients have accepted the rice diet, and many more have accepted diets made more liberal by giving more protein and by the use of mercurials. During the war much work was done on desalting agents to aid sailors and soldiers on life rafts. More recent studies have shown that it may be possible to prepare potable emulsions of insoluble material which will take up sodium as it passes through the digestive tract. With our present diets and diuretics, the physician can determine the effectiveness of sodium depletion on the symptoms and arterial pressure of any patient. This determination may well precede any recommendation for surgery.

CLINICAL EVALUATION OF TETRA-ETHYL-AMMONIUM

By G. H. Yeager, M.D., J. H. Walker, M. D., and W. T. Raby, M. D.

Condensed from the Southern Medical Journal

TETRA - ETHYL - AMMONIUM ("TEA"), both as the chloride and the bromide, is a recently developed adjunctive in the study of peripheral vascular disorders. This report covers a 9-month period in which TEA compounds were used in the diagnosis and treatment of vasospastic conditions.

TEA has been shown to block nerve impulses at the autonomic ganglia, both sympathetic and parasympathetic. Its outstanding clinical effect appears to be comparable to an extensive sympathectomy. Parenteral administration usually causes an abrupt fall in systolic and diastolic blood pressure, with an increase in the peripheral blood flow as evidenced by elevation of peripheral skin temperatures.

Other effects of TEA administration include abrupt cessation of gastro-intestinal motility, with slow return. The desire to void with bladder distention is temporarily lost. In cases of peptic ulcer it has been shown to reduce

the excessive night gastric secretion and acidity, and to relieve the ulcer pain.

In addition, pupils are dilated, and accommodation is lost. Patients complain of heavy eyelids or of drowsiness, of an acid metallic taste, and of a peculiar "pins and needles" sensation over the entire body. The peculiar taste and paresthesia are transient, usually disappearing in 3 to 4 minutes.

The lowest level of blood pressure drop, following administration of TEA, is reached within 5 minutes. The pressure usually returns to normal levels within 20 minutes. There is a definite postural hypotension. The effects of peripheral vasodilation reach maximum height with intravenous TEA injections in 30 to 45 minutes, and gradually return to previous levels in one to two hours. The duration of effect is somewhat longer after intramuscular injection, two to six hours.

TEA autonomic blockade is an easy method both for the clinician and for the patient, in

obtaining a sympathetic block. It is more reliable than paravertebral block, and is more economical than either spinal or caudal anesthesia.

The series which we studied—totalling 116 patients—includes cases of thrombophlebitis, various stages of peripheral arteriosclerosis obliterans, thrombo-angiitis obliterans, lymphedema, scalenus anticus syndrome, frostbite, and acute traumatic conditions with impaired circulation. We also studied cases of hypertension, as a means of testing the liability of the arterial pressure. The courses of therapy varied from intensive treatment with multiple injections for a few days, to periodic (injections at intervals of a few days or a week). Most patients were ambulatory.

The drug was always administered with the patient recumbent. Dosage varied from 100 to 500 mg. (1 to 5 cc.) intravenously, and averaged 20 mg. per Kg. of body weight intramuscularly in a 10 per cent solution. The average 500 mg. intravenous injection took about 30 seconds. The longest period of treatment was 96 days, and the largest total amount given to one patient

was 32,000 mg. None of the patients exhibited any ill effects.

RAYNAUD'S DISEASE. Four patients were studied in this group. TEA in this group played a dual role. It established the degree of vasospastic element, and clarified the need of sympathectomy. It was successful in two cases in establishing what appears to be a permanent alleviation of symptoms.

ORGANIC OBSTRUCTIVE VASCULAR DISEASES. Eighty patients were studied in this group. There were 8 with Buerger's disease, and 72 with peripheral arteriosclerosis obliterans.

All eight patients with Buerger's disease exhibited definite response to TEA, even with the initial injection. Temperature rise averaged 2 to 5° C., with subsidence of pain.

The 72 patients with peripheral arteriosclerosis obliterans showed responses which were variable and were generally unsatisfactory. Seventy per cent of the group receiving evening intramuscular injections were relieved of nocturnal pain. We believe that TEA is chiefly valuable in this group as a diagnostic aid

in evaluating the probable effects of sympathectomy.

THROMBOPHLEBITIS. Four patients were studied in this group. Three had a chronic deep pelvic or femoral thrombophlebitis post-partum. The fourth had a migratory phlebitis of the great saphenous system. All showed dramatic response to TEA injections.

FROSTBITE. There were 5 patients in this group, 4 with involvement of the feet and one of the hands. All exhibited classical signs of coldness, waxy pallor or cyanosis, and anesthesia. All were given TEA intravenously. Recovery was remarkable in all cases. Those with frostbitten feet walked out of the hospital symptom-free in from 4 to 6 days. The patient with frozen fingers was released after 24 hours. Follow-up examinations in four cases has revealed no residual damage; the fifth could not be located. It is believed that severe forms of frostbite should have TEA therapy supplemented with anticoagulants.

ACUTE TRAUMATIC CONDITIONS. Four patients were seen

in this group. All received crushing injuries with extensive soft-tissue damage of the lower extremities. Results in this group were generally good.

CAUSALGIA STATES. Five patients were seen in this group. For diagnostic criteria, we required a history of trauma; and of pain out of proportion to the injury, of long duration, and not following a pattern of innervation. In these cases the first injection of TEA relieved pain temporarily. Subsequent injection in 2 patients did not again produce relief of pain. Two others subsequently had sympathectomies with satisfactory results.

HYPERTENSION. Our results in this group of 10 patients were encouraging, though inconclusive. TEA produced a greater average fall in arterial pressure than did sodium amytal, though of course the fall was not sustained for more than a few hours. Two patients were relieved of severe headache by TEA, after the usual measures for relief had failed.

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PENICILLIN IN THE TREATMENT OF CHRONIC OSTEOMYELITIS

By Frederick M. Graham, M.D., Mark B. Coventry, M.D., Ralph K. Ghormley, M.D.

Condensed from the Proceedings of the Staff Meetings of the Mayo Clinic

FOR many years the treatment of chronic osteomyelitis has been a long and tedious process, with extensive periods of disability of the patient. Packing of the wounds and healing by secondary intention were considered as essential to any hope for cure.

Since the advent of the sulfonamide drugs and, more recently, the antibiotic agents, these concepts have been modified. It was learned early, however, that by themselves these drugs were of little value. They are only adjunctive and protective to a thorough surgical attack on the disease.

This presentation is based on 68 cases in which chronic osteomyelitis was treated at the Clinic during 1944, 1945 and early 1946. All the patients underwent surgical treatment and all received penicillin parenterally as adjunctive therapy. The cases have been divided into two main groups: 27 in which wounds were packed open or were widely drained postoperatively and 41 in which closure was primary. Penicillin

was used in an average dose of 100,000 units per day for 15 days for those with drainage, 140,000 units per day for 14 days for those with primary closure.

The rate of healing of 67% in cases packed open or widely drained and the rate of 88% in cases in which primary closures were employed indicate that penicillin has a definite and very important place in the treatment of chronic osteomyelitis.

Chronic osteomyelitis is, as we have intimated, one of the very serious focal infections. There is an old saying among orthopedists, "Once an osteomyelitis, always an osteomyelitis." And it is true that persons may live forty years or more with no trouble after the original attack of osteomyelitis, only to have a recurrence. The treatment of chronic osteomyelitis which we use now is an attempt actually to destroy the infection in the body, and to prevent not only the acute exacerbations, but also the secondary effects on the body, of a chronic focal infection.

PLAN OF TREATMENT. First, penicillin with or without sulfathiazole is administered for three to seven days preoperatively, combined with other supportive measures including the transfusion of blood, when blood is indicated.

Second, radical excision of the infected bone, irrigation with a solution of penicillin and primary closures, with or without temporary drainage, are carried out.

Third, postoperative antibiotic therapy is instituted. Streptomycin may be employed in certain cases, depending on the flora present.

ADVANTAGES OF TREATMENT. First, this treatment allows more thorough removal of infected bone than do other procedures because of the protection afforded by penicillin to

the body in general and to the extremity in particular.

Second, the method usually permits performance of primary closure, thus decreasing the number of painful, odorous dressings as well as the patient's stay in the hospital.

Third, the percentage of "cures" will, we think, be greater, although this cannot as yet be proved.

The figures arising from this study are not intended to condemn the open method of treatment. Most authorities state that where the process is extensive and actively purulent, the open method is still the one of choice. The figures in our study do indicate, however, that in selected cases primary closure is safe and curative and that it considerably shortens the period of morbidity and disability.

LKF:KOE



¶ Every man has a right to utter what he thinks truth, and every man has a right to knock him down for it.—*Samuel Johnson*

THE VALUE OF POSTOPERATIVE DICOUMARIN PROPHYLAXIS AT "EARLY RISING"

By Stig Borgstrom

Condensed from Acta Chirurgica Scandinavica

WE have studied the effect of postoperative dicoumarin prophylaxis on thrombo-embolic complications. Our material for this study consisted of 1,831 patients, age 25 or older, who were operated on at the Surgical Clinic in Lund during 1946. The majority were allowed to get up within 4 days of the operation.

It has been demonstrated that early postoperative rising decreases the frequency of thrombo-embolism, at least to the same extent as dicoumarin prophylaxis. We have endeavored to learn whether the combination of these two methods will further reduce the incidence of thrombo-embolic complications.

In our study, the patients were divided into two groups, through selection of alternate clinic numbers. After elimination of those patients for whom we felt dicoumarin was contraindicated (e. g., cases with impaired liver function, or with prolonged bleeding or clotting time), there remained

701 in the treated group and 1,130 in the non-treated group. Of the former category, 337 were men and 364 were women; of the latter, 563 men and 567 women.

We administered 0.25 or 0.125 Gm. of dicoumarin the day after operation. The smaller dose is reserved for old or debilitated patients, those with a larger wound, or cases where there is some disturbance of gastro-intestinal motility. If the prothrombin index decreases only slightly by the following day, or shows no change, a further 0.125 Gm. of dicoumarin is administered. This procedure is followed until the prothrombin index is below 60. If the prothrombin index falls below 40 units, water-soluble vitamin K is given.

We have not found large doses (100—200 mg.) of vitamin K necessary in prophylactic dicoumarin therapy. They are likely to cause undesirable shifts in the prothrombin index curve. In cases of bleed-

ing, which can be traced to the dicoumarin treatment, the patient is given vitamin K in a dose of 20 mg. If the bleeding is serious, a transfusion of whole blood is also given.

In the dicoumarin-treated cases in this study, all abnormal bleeding has been considered to be due to dicoumarin. No fatal or uncontrollable hemorrhage occurred. The men showed a somewhat greater disposition to bleeding than did the women, both with regard to the dicoumarin and non-dicoumarin treated cases. For all, the frequency of bleeding is higher for the dicoumarin-treated than for the non-dicoumarin-treated.

For the diagnosis of thrombosis in this study, we have included not only the evident cases, but also those in which the patient complains of pains or of a feeling of heaviness in the leg, and without necessarily any objective evidence of a thrombus. A sudden occurrence of a "stitch" in the chest has been considered sufficient reason for making a diagnosis of embolism. Verification of the diagnosis by hemoptysis or by x-ray changes was not required. Thus we have probably erred with a diagnosis of thrombo-embolism.

The dicoumarin and non-dicoumarin treated groups are generally homogeneously composed, and are thus comparable. This is only the case, however, provided that those who underwent transvesical prostatectomy are excepted. Among the remaining 1,061 non-dicoumarin treated patients, thrombo-embolisms occurred in about 4.9%. The corresponding figure for the treated group is about 2.3%.

No fatal pulmonary embolism occurred among the prophylactically treated cases. On the other hand, 7 such deaths have occurred among those not treated, despite the fact that heparin and dicoumarin treatment were given in all cases where there was time for treatment and the diagnosis of thrombo-embolism was made. It is apparent, therefore, that prophylactic post-operative dicoumarin therapy can diminish the number of fatal pulmonary embolisms.

Studied by sexes, it appeared that postoperative dicoumarin prophylaxis was relatively ineffective in men, but in women, it prevented thrombo-embolic complications. We do not know the explanation for this.

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THE USE OF A HIGH FLUID INTAKE AND A LOW SODIUM ACID ASH DIET IN THE MANAGEMENT OF PORTAL CIRRHOSIS WITH ASCITES

By John A. Layne, M.D., and F. R. Schemm, M.D.

Condensed from Gastroenterology

INASMUCH as a high fluid intake and a diet which is low in sodium and yields an excess of acid-ash has been found effective in the relief of ascites and hepatic passive congestion in advanced heart failure, we undertook an investigation of the value of this same regimen as an adjunct in the treatment of patients with the clinical syndrome of portal cirrhosis of the liver with ascites. In all but one of 20 patients such a regimen was found of definite value in facilitating the clearing of ascites, in lessening the need for paracentesis and in relieving the mental symptoms of hepatic insufficiency.

The 20 patients in this series were carefully selected to make certain that the diagnosis of portal cirrhosis with ascites was correct. Wherever there existed a possibility that the diagnosis might have been confused with abdominal carcinomatosis, chronic peritonitis, or a cardiac or renal lesion, such a case was ex-

cluded from this series. Sixteen of the patients were males, and four were females. Their ages varied from 26 to 73 years and the average age was 54.5 years. A history of excessive alcoholism was present in 15 of the patients. In all patients except one the Wassermann and Kahn tests of the blood were negative. The liver was enlarged in all patients although often the extent of this enlargement was not evident until after clearing of some of the ascites. Mental disturbances, unrelated to acute alcoholism, and ranging from mild confusion to somnolence or extreme excitement, were frequently encountered. In 4 patients this disturbance was marked, and in 6 others, it was moderate in degree. Detectable peripheral edema was present in 9 patients. In 10 patients this was described as 4 plus, in 8 as 3 plus, and in only 2, as 2 plus. Seven of the patients had required paracentesis before being placed on the regime.

The treatment of these patients was essentially the same as has been previously described for the management of the edema of cardiac failure. When the patients were admitted to the hospital or as soon as food was tolerated the "initial diet" was used for the first four to six days and the "full neutral diet" was used thereafter, both in the hospital and after their return home. The caloric intake of these patients was not restricted. A daily ingestion of 250 Gms. of carbohydrate, 75 Gms. of protein, and 100 Gms. of fat was average for this group. Intravenous supplements of 5% dextrose frequently increased the carbohydrate intake by 50 to 100 Gms. a day. Vitamins (administered orally and parenterally) were given in amounts estimated as necessary to correct any preexisting deficiency. Liver extract was administered intramuscularly to the more seriously ill patients.

The fluid intake of all patients exceeded three liters daily. Intake and output was recorded as accurately as possible in a general hospital. Any correction of errors would increase the amounts recorded. Frequently it was necessary to supplement the

oral intake of fluid by the intravenous use of 5% dextrose in distilled water, in amounts of one to two liters daily.

Ammonium chloride was given in enteric coated tablets in an average dose of 4 Gms. daily. Diluted hydrochloric acid (2 to 3 cc. daily in divided doses) was given for varying intervals to many of the patients. The mercurial diuretics used in this series were either mercupurin, administered intravenously in 500 cc. or 1000 cc. of 5% dextrose in distilled water, or less often mercurhydrin was given intramuscularly. The usual dose of either drug was 2 cc. although occasionally 1 cc. was given.

As already stated, clearing of the ascites occurred in all but one of the 20 patients. The decrease in ascites was usually proportionate to weight loss, but in some instances the weight loss was less than would be expected with the marked clearing of ascites due to "shift" of water from the extracellular to intracellular space. In the 8 patients whose ascites was described as 4 plus, or very marked, the average weight loss was 24.4 pounds during the period of clearing of the ascites, for which an average of 18.9 days

were required. The patients whose ascites was 3 plus, cleared their ascites in an average 13.5 days, accompanied by an average weight loss of 13.0 pounds, whereas the 2 patients, whose ascites represented a 2 plus accumulation of fluid, cleared their ascites in 9 and 6 days, accompanied by a drop in weight of 11 and 12 pounds, respectively.

Little change occurred in the size of the liver during the period of clearing of the ascites, or subsequent to it. This is in contrast to patients whose ascites is the result of congestive heart failure, and in whom marked decrease in the size of the liver is commonly observed. The slight to moderate detectable peripheral edema which was present on admission in 9 patients disappeared during the period of clearing of the ascites.

Improvement in the mental symptoms of these patients after the institution of treatment was striking. Initially the degree of their mental disturbance was often sufficiently great that additional nursing attendance was needed. In no instance were these symptoms due to acute alcoholism or to delirium tremens. The improvement of these

symptoms did not necessarily parallel clearing of the ascites, but it did appear to follow more closely upon the institution of a liberal intake of water.

One patient is classed as a failure to this regime. He was a 26-year-old male whose cirrhosis was believed due to a combination of excessive alcoholism and exposure to chemicals. A previous omentopexy had not prevented the reaccumulation of ascites. The regime did, when enforced, decrease his ascites from 4 plus to 2 plus, but clearing was never complete. He was the only one of the 20 patients whose mental status did not improve and who quite consistently refused to cooperate. During subsequent "control periods" on a restricted fluid intake, the ascites fluid reaccumulated rapidly and repeated paracenteses were required.

Fluid intakes of 3000 to 5000 cc. daily did not produce a gain in weight or increase in ascites. No initial rehydration gain in weight, such as had been observed in cases with cardio-renal disease, was observed in these 20 cases. In instances where the daily oral intake was low, intravenous infusions of 5 per cent dextrose in distilled water were

given in amounts of from one to two liters daily to bring the total intake to the desired amount. In no instance was the administration of these amounts of isotonic dextrose in distilled water followed by any ill effect. The higher daily intakes were enforced orally, or by vein when there was evidence of excessive water vapor loss or marked renal impairment.

Even when the total proteins were low and the albumin-globulin ratio reversed in the blood, and the total protein relatively high in the ascitic fluid, it was possible to remove large amounts of ascites via the circulation through the manipulation of sodium and the provision of an ample supply of water.

The mechanism of production of ascites in portal cirrhosis of the liver is not clearly understood. There have been recent observations that indicate that neither the total protein concentration of the blood nor the level of the albumin fraction, control entirely the accumulation of ascitic fluid. Stasis in the portal system is undoubtedly a factor in the development of the ascites, but in patients with cirrhosis, fluid may be retained

in other parts of the body, even when no ascites is present. The ascites as well as the peripheral edema of congestive heart failure may be cleared with the low-sodium, acid-ash, high fluid regime. Our observations in this study indicate that the ascites of portal cirrhosis responds in a similar manner. We feel, therefore, with others that too much emphasis has been placed on the "critical level" of the plasma albumin and on the increased venous pressure in the portal circulation as determining factors in the production of ascites.

Further progress in the treatment of portal cirrhosis of the liver will continue to depend upon its prevention wherever possible as well as its early recognition and the institution of a high carbohydrate, high protein diet, along with vitamin supplements and liver extract. Our observations indicate that a low-sodium, acid-ash diet and a liberal intake of water might well be added to the treatment of patients with chronic parenchymatous liver disease before the development of ascites whenever possible and certainly after its appearance.

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PITFALLS IN THE TREATMENT OF DIABETIC COMA

By Alexander Marble, M. D.

Condensed from the Journal of the Kansas Medical Society

DESPITE remarkable advances in the insulin era, patients still acquire, and not infrequently die from diabetic coma, the end-stage of the uncontrolled disease. Though the morbidity and mortality from diabetic coma have been greatly lowered, there is still much room from improvement. Diabetic coma is a preventable condition and, if treated early enough, always remediable.

PREVENTION. It is the careless patient, the one with poorly controlled diabetes, who is most likely to develop diabetic coma. Herein lies the outstanding value of early and continuous education of the patient and his family regarding diabetes, its complications and its home management. To enable himself to be of greater service, the physician should enlist the aid of a nurse, dietitian or other qualified worker in order that details of management may be explained over and over to patients.

We believe that degenerative complications, chiefly arteriosclerotic, now seen to such an alarming extent after 15 or 20 years of diabetes in certain patients with onset in child-

hood, are the result of poorly controlled diabetes and are to be avoided or deferred only by continuous, careful treatment. We deplore the teaching that hyperglycemia and glycosuria are not harmful, and urge that the aim of treatment be as nearly 100% control and restoration of normal conditions as is possible or practicable in the individual case.

Patients must be made to understand that at times of acute illness, insulin must be continued daily, even though food intake is scant. Often, particularly if the illness is accompanied by fever, an even greater dose may be necessary. The dose should not be reduced unless the urine, tested every 3 or 4 hours, contains no sugar.

Patients must be taught to make regular visits to the physician for check-ups at intervals which may vary from once a month to once or twice a year, depending upon the case. Patients and their families must be instructed to get in touch with the physician at once during the early stages of any illness before the development of serious complications.

DIAGNOSIS. Often the clinical findings of diabetic coma are not typical and may confuse the most experienced observer. It is so easy to be misled that the diagnosis should be confirmed by laboratory tests in each case. This need not, and should not, delay treatment in cases of definite diabetic coma because, based on the examination of the urine for sugar and diacetic acid, treatment may be got under way while blood chemistry determinations are being carried out.

In a case of diabetic coma there is need for the utmost speed of action. Treatment must be started within a few minutes after first observation. If the clinical impression includes diabetic coma as a possibility, then the urine, obtained by catheter if necessary, should be tested for sugar and diacetic acid at once. Blood should be drawn for determination which should include at least that for sugar, preferably also for carbon dioxide content and non-protein nitrogen, and, if available, those for chloride and acetone body content. The report of the initial blood studies should be ready for the physician within an hour of the patient's admission.

TREATMENT

1. **INSULIN.** The most treacherous pitfalls in the treatment of diabetic coma is the danger of giving too little insulin. In the average case of full-blown coma, insulin must be given boldly and fearlessly in large doses, particularly in the first 3 hours after the patient is brought for treatment.

As soon as the diagnosis is made, a preliminary large dose of unmodified insulin, at least 50 U and in most patients 100 U, should be given subcutaneously. In patients in shock or in whom it might be anticipated that absorption from subcutaneous spaces might be slow, a supplementary dose of like size may be given intravenously. Additional amounts should be given in divided doses during the first 3 hours of observation, basing the decision as to size of dose upon clinical behavior and the level of the initial blood sugar, according to some such schedule as the following:

If the initial blood sugar is

300-600 mg. per 100 cc., give
50 to 100 additional U
600-1000 mg. per 100 cc., give
200 additional U
Over 1000 mg. per 100 cc., give
300 additional U

After 3 hours, the blood studies should be repeated. One hopes that the blood

sugar will be falling and the carbon dioxide content rising, but if this proves not to be the case, then one knows that, regardless of the size of previous doses, insulin must be given promptly and in still larger amounts. Some patients in diabetic coma need much more insulin than others, but it is fair to state that if enough insulin is given, even exceeding 1000 U over a period of a few hours, a blood sugar-lowering effect will be obtained. The size of dose must be gauged by the effects obtained rather than by any routine plan.

In children or in those patients with untreated diabetes of recent onset, or in those with relatively mild acidosis, the number of units given may be smaller.

2. FLUID AND SALT. A second common pitfall in treatment is the danger of not replacing adequately the fluid and electrolytes lost in large amounts in the development of coma, chiefly by diuresis and vomiting. If truly adequate doses of insulin are not given early enough, other features of treatment will be of no avail. Next of importance to insulin is the giving of adequate amounts of water and electrolytes.

In practice, one starts within a few minutes after admis-

sion an intravenous infusion of a physiologic solution of sodium chloride and allows this to run in slowly for the next few hours until at least 2 and at times 3 to 4 liters have been given or the desired effect secured. Occasionally even larger amounts, up to 6 liters in the first 24 hours, may be necessary.

3. GLUCOSE. A third pitfall is the danger of giving glucose parenterally early in treatment. In our opinion, the use of glucose during these first few hours has no place in treatment. If adequate amounts of insulin have been given, by the first 4 to 6 hours the blood sugar will have started to fall and the acidosis to clear up. At this stage carbohydrate may be started orally (or, in exceptional cases, intravenously if need be).

4. ALKALIES. We do not use alkalies, either orally or parenterally, and regard their use as undesirable. The administration of alkalies represents the treatment of the effect, rather than the cause, of acidosis.

5. ACCESSORY MEASURES. The patient must be kept warm by means of blankets, taking care not to burn the skin with hot water bottles, electric pads or other heating devices. Thorough search should be

made for complications, particularly if fever is present. The stomach should be washed out routinely and a cleansing enema given to relieve abdominal distention. Of the utmost value is the constant attendance of the physician until it seems certain that the early, vigorous treatment is proving successful and that recovery will take place.

6. SUBSEQUENT THERAPY. Early in treatment, when consciousness has returned, and an hour or two after vomiting has subsided one may give clear fluids by mouth. After

the clinical condition and the blood sugar and carbon dioxide content have shown improvement, further administration of insulin may be made. This should be given hourly at first, and later at 2,- 3- or 4-hourly intervals, according to the results of the Benedict test for sugar in urine. Within 18 to 24 hours, a soft solid diet may be begun, and protamine zinc insulin started. In succeeding days, return to a standard diet and insulin adjustment are carried out, and gradual resumption of activity allowed.

CLB:HBJ



SCHISTOSOMIASIS

Previously withheld from publication for security reasons, results of research on the blood fluke infection, schistosomiasis, have been released by the U. S. Public Health Service of the Federal Security Agency in "Studies on Schistosomiasis," National Institute of Health Bulletin No. 189.

Many of the Institute's investigations into this snail-borne disease were conducted at the request of the Surgeon General of the U. S. Army. While the disease is not endemic in this country, some military personnel returning from overseas were found to be infected, mostly as a result of exposure in certain islands of the Philippines.—*Release, U. S. P. H. S., Washington, D. C.*

SURGICAL TREATMENT FOR SYMPTOMS PRODUCED BY CERVICAL RIBS AND THE SCALENUS ANTICUS MUSCLE

Alfred W. Adson, M.D., F.A.C.S., Rochester, Minnesota

Condensed from Surgery, Gynecology and Obstetrics

THIS review includes the patients for whom scalenotomy has been performed at the Mayo Clinic during a 22-year period, from 1925 to 1946. There are 142 patients in the series.

In order to make the proper diagnosis of a troublesome cervical rib or scalenus anticus muscle, the vascular test has been employed. The test indicates whether or not the volume of the pulse has been altered, suggesting that the subclavian artery has or has not been compressed. If it has been, it is supposed that the brachial plexus is also irritated whenever the scalenus muscle is placed on tension.

The test consists of having the patient take a long breath, elevate his chin, and turn it to the affected side. This is done as the patient is seated upright, with his arms resting on his knees.

It has been my experience that little has been accomplished by the scalenotomy without the presence of cervical ribs unless the result of the

vascular test is positive. If the radial pulse can be obliterated, scalenotomy should be performed at once.

The omohyoid muscle may also compress the brachial plexus and give rise to paresthesias. I purposely leave the ends unsutured at operation when this is the case.

To determine the incidence of cervical ribs, a group of patients were routinely x-rayed at the Mayo Clinic and it was found that 303 patients had cervical ribs, or about 5.6 patients per thousand. Of these, 84 were males and 219 were females; 143 were found to be bilateral. In 167 cases, 55%, there were no symptoms.

I believe the etiologic factor is first an anatomic structure of the neck different from the normal person. The cervical portion is longer and this accounts for the high-lying second division of the subclavian artery. Also, the space through which the subclavian artery and the cords of the brachial plexus pass is decreased.

Second, there is a posterior

descent of the shoulder girdle in early adult life. This adds sufficient traction on the plexus to precipitate symptoms.

The third is the scalenus anticus muscle as the chief factor. Increasing the tension on this muscle activates the complaints of the patient.

In most cases, it is not necessary to remove cervical ribs routinely, and the chief etiologic element is the scalenus anticus muscle.

This condition must be differentiated from bursitis, fibrositis, brachial neuritis, Raynaud's disease, thromboangiitis, neoplasms within the spinal canal, neoplasms of the peripheral nerves, and protruded intervertebral discs.

The pain may be sharp or a dull ache. It usually courses downward over the ulnar and medical nerves. It is exaggerated by rotation of the patient's head or a forceful downward pull of the shoulder. Hyperesthesia, paresthesia, and anesthesia may be associated with the pains.

SURGICAL TREATMENT. A collar incision (1-3) is made for a distance of about 5 cm., extending upward and backward from the sternoclavicular articulation over the posterior triangle. The dissection is car-

ried through the platysma myoides muscle and fat until the tendon of the sternocleidomastoid muscle, with its attachment to the clavicle, is exposed. The clavicular attachment is divided between two forceps. The muscle portion is then reflected mesially, so that the tendon of the omohyoid is exposed. This tendon is divided, and the tendinous attachment of the scalenus anticus muscle, with the phrenic nerve running obliquely across it from the lateral to the mesial border is exposed. During desiccation, the transverse cervical and the suprascapular arteries are divided and ligated. The scalenus anticus muscle is dissected free and the phrenic nerve is retracted mesially before the tendinous and muscular insertion is divided. The subclavian artery will appear on the lateral side of the scalenus anticus muscle and, if the space between the cervical rib (or the cervical rib and the tendinous bands to the thoracic rib) and the lateral border of the scalenus anticus muscle is narrow, the surgeon immediately observes compression of the subclavian artery against the trunks of the brachial plexus. On the mesial side of the scalenus anticus

muscle the pleura may be observed and, if dissection is carried still farther mesially, the carotid sheath and the vertebral artery will be exposed; this, however, is unnecessary.

It is important to carry the dissection upward on the anterior surface of the scalenus anticus muscle for a distance of 5 cm. in order to expose the phrenic nerve thoroughly before it is retracted mesially.

Partial removal of the cervical rib is indicated when the rib is completely formed and occupies a high position as it turns downward. There is no contraindication to a bilateral operation. Of the group reviewed at the Mayo Clinic, it was found that in all cases in which the vascular test was positive the scalenus anticus muscle produced a compression.

The surgical results were both satisfactory and disap-

pointing. They are divided into three groups. Group A includes patients for whom scalenotomy was performed without resection of the cervical ribs. There were 63 patients in this group. Group B were patients for whom combined operations were performed. There were 26 patients in this group, 54% being relieved of their symptoms in Groups A and B. Group C included patients in whom scalenotomy was performed in the absence of cervical ribs (53 patients). Slightly more than a third of the patients in this group were relieved of their symptoms; many were improved.

Scalenotomy and section of the scalenus anticus muscle, occasionally with resection of the distal portion of the muscle when it is hypertrophied, appear to constitute the operation of choice.

LKF:CBH



¶ No person will have occasion to complain of
the want of time who never loses any.—
Thomas Jefferson

PROLONGED HYPERCALCEMIA AND METASTATIC CALCIFICATION OF THE SCLERA FOLLOWING THE USE OF VITAMIN D IN THE TREATMENT OF RHEUMATOID ARTHRITIS

By John W. Frost, M.D., F. William Sunderman, M.D., Ph.D., Philadelphia, Penna.

Condensed from the American Journal of the Medical Sciences

WITHIN the past few years a number of reports have appeared in the medical literature regarding the harmful effects of prolonged administration of large amounts of irradiated ergosterol.

The symptoms of acute toxicity from vitamin D appear quite early in the course of therapy, and seem to be influenced by the amount of vitamin D and calcium ingested. There also seems to be considerable individual variation among patients regarding the amount required to produce intoxication. Vitamin D given in milk may have 10 times the potency of that given in oil.

Tumulty and Howard report 2 patients in whom gastro-intestinal symptoms appeared about 2 weeks following the daily ingestion of 750,000 international units of irradiated ergosterol. In a patient reported by Freeman, et al., symptoms of acute toxicity appeared after taking ap-

proximately 300,000 international units for a period of 6 weeks.

Diminution in renal function is frequently observed following the excessive ingestion of vitamin D. Patients with normal renal function prior to taking vitamin D have shown albuminuria, hematuria, and retention of non-protein nitrogen components after receiving large doses for a prolonged period of time. The kidney is exceptionally vulnerable to the action of vitamin D, and diminution in renal function might be regarded as a contraindication to administering large amounts of this vitamin.

Calcification of soft tissues may also appear following the prolonged administration of vitamin D. These may be detected clinically as localized, painful swellings around the joints, or as radiographically opaque areas in muscles, blood-vessels, kidney, and tendon attachments. It has been demonstrated repeatedly that

experimental animals can be killed by administering large doses of irradiated steroids and that the outstanding pathologic finding in these animals is diffuse metastatic calcification involving especially the arterial system and the kidneys. There is some indication that the subcutaneous tissue calcification in certain patients may disappear after discontinuing the administration of vitamin D. Studies of our own indicate that the administration of large doses of vitamin D may have a prolonged effect lasting over a period of months.

Several investigators have shown that the degree of hypercalcemia produced by irradiated ergosterol is to an extent dependent upon the amount of calcium ingested. It is noteworthy that many of the patients who showed undesirable effects following administration of vitamin D, had in addition, received abnormally large amounts of calcium.

It would seem obvious that patients receiving vitamin D for the treatment of arthritis should not be permitted to

continue treatment on their own initiative. Measurement of serum calcium should be made at frequent intervals and the administration of vitamin D should be stopped if hypercalcemia develops. In addition, it might be worth emphasizing that in any patient having an unexplained hypercalcemia, careful questioning might be made regarding the previous intake of vitamin D. It would also appear that the toxic effects from the administration of vitamin D perhaps may be more common than the paucity of reports may indicate.

The introduction of vitamin D in the therapy of arthritis followed the chance finding that patients receiving this substance for allergic conditions showed a coincident improvement in arthritis. Abnormality in the calcium and phosphorus balance of patients with arthritis has not been demonstrated. If there are any favorable effects of vitamin D in arthritis it would appear that they are probably unrelated to the metabolism of either calcium or phosphorus.

AN ANALYSIS OF 115 CASES OF PERTUSSIS TREATED WITH PERTUSSIS ANTITOXIN

By Ernest M. Worden, M.D.

Condensed from the Canadian Medical Association Journal

WE have studied the effect of pertussis antitoxin in the treatment of 115 clinically-diagnosed cases of whooping-cough. The antitoxin which we used is a combination of an antiendotoxin and an anti-bacterial rabbit serum. It is prepared from the globulin fraction of rabbit serum.

Our cases were selected from a total of 581 patients with a clinical diagnosis of pertussis, who were admitted to the Alexandra Hospital in Montreal between January 1943 and June 1945. We included in our study only those patients who had had signs of the disease for less than 2 weeks, and of them the most severe cases.

Clinically, all patients had whooping-cough. We were not able to confirm the diagnosis by bacteriologic studies in every case, because of our difficulty in culturing and isolating *H. pertussis*.

In evaluating the effects of therapy, we used as a guide the number and severity of paroxysms of coughing. This

we found to be a much more reliable indication than a study of temperature, pulse rate, leukocyte count, or chest x-ray.

Following admission each child was observed for a period of 2 to 4 days. During this time an accurate count of the number of spasms and their severity was made for each 24-hour period. When an approximate base-line had been established, 1/20 cc. of the antitoxin was given intradermally as a sensitivity test. If this was negative, a full dose of 10 cc. of antitoxin (10,000U.) was given intramuscularly. A daily record of the number and severity of the spasms was then kept and charted for the balance of the child's stay in the hospital.

Of the 115 cases, only 4 showed a febrile reaction (to 101° or less) following the serum administration. In all cases the temperature returned to normal in 24 hours. The leukocyte counts varied between 9,900 and 80,000, with the majority being between

20,000 and 40,000. In all cases there was a predominant lymphocytosis, except when a secondary complication was present.

The ages of the children in this group fell between 4 weeks and 11 years. Thirty-six cases were under 6 months of age, and 67 cases were under 2 years of age.

RESULTS. In the cases studied, 77% showed a definite

response to therapy, ranging from excellent to fair, depending on the dosage used and the individual case. Twenty-three per cent showed no response whatever to treatment.

The length of stay in hospital was not appreciably different from that in the cases receiving no specific therapy, nor was the incidence of pneumonia.

There were no fatalities.

JPS:HBJ



TREATMENT OF PULMONARY EMBOLISM

1. Emergency treatment.
 - a. 1/60 gr. atropine sulfate and ½ gr. of papaverine hydrochloride intravenously.
 - b. Oxygen by inhalation.
 - c. 50 mg. of heparin intravenously and 300 mg. of dicumarol orally.
 - d. Avoid use of morphine, epinephrine and digitalis.
2. Continued treatment.
 - a. Repeat injections of atropine and papaverine every 4 to 6 hours as needed.
 - b. Oxygen as needed.
 - c. Heparin and dicumarol.
3. Absence of emergency.
 - a. Heparin and dicumarol.

Edgar V. Allen, M.D., *The Journal of the American Medical Association*, September 6, 135:15-17, 1947.

LBL:LBL

THE TREATMENT OF DECUBITUS ULCERS WITH FIBRIN FOAM A PRELIMINARY REPORT

By Lieutenant (ig) Irving S. Cooper, M.D., U.S.N.R. and Captain Thomas I. Hoan, M.D., U.S.N.R., St. Albans, L. I., N. Y.

Condensed from the Military Surgeon

THIS presentation is a preliminary report on the use of fibrin foam as a therapeutic agent in the management of decubitus ulcers. This was found to be an acute problem in a paraplegic center where it was found that both pressure and low body proteins lead to the formation of decubitus ulcers.

When one or more large decubitus form, the continued protein loss from these open wounds is considerable. Prevention is of primary importance, with frequent turning of the patient. The use of the Stryker frame is particularly useful. One can turn the patient with no assistance and with little pain to the patient from the supine to prone position in three minutes.

Many methods of treatment have been tried, including scarlet red ointment, penicillin-plasma ointment, infra-red light, and others. None has been felt to stop adequately the protein-laden fluid loss.

The method used is to ap-

ply fresh fibrin foam daily. Thrombin is dissolved in isotonic solution of sodium chloride at room temperature. Fibrin foam is then soaked in the thrombin solution for a few minutes. A piece of thrombin-soaked fibrin foam is then applied to the freshly sponged oozing surface. It is held in place with pressure for one minute, then the pressure is released. In most cases, moist tyrothricin dressings are placed over the fibrin foam application.

This method of treatment has been used and we believe that it answers the need for such an agent by its hemostatic action at the oozing site. In addition, high protein, high caloric diet, protein parental supplements, anti-bacterial therapy, and frequent turning are essential.

This method is used only to prepare the decubitus ulcers for surgical closure by the flap or skin graft method and is not intended to be used as the sole therapy of decubitus ulcers.

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LKF:CBH

THE PROBLEM OF THE NEUROTIC PATIENT

By William C. Menninger, M.D., F.A.C.P., Topeka, Kansas

Condensed from the Annals of Internal Medicine

As a psychiatrist, I represent a minority of the medical practitioners. However, the subject of my discussion, "the neurotic patient," represents a majority of all of the patients who seek help from physicians. This fact is not new but military experience gave dramatic evidence to support it. The discharges with neuropsychiatric diagnoses alone accounted for more than the total of those given for infections, disorders of the gastrointestinal, cardiovascular, respiratory and genito-urinary systems, for ear, eye, nose and throat afflictions, tuberculosis and venereal disease. Considerably more than half of the neuropsychiatric discharges were for psychoneuroses and undoubtedly many neurotic soldiers were discharged under other diagnoses.

Our understanding of that form of emotional illnesses—"the neurosis"—has increased greatly during the last 20 years. But much of this information has not become common knowledge either to our

physicians or to our medical students. Many physicians are quite unable to give any scientific explanation for an hysterical paralysis, a phobia of tuberculosis, or of a so-called organ neurosis. They know that the action of the heart or lungs is involuntary but they have difficulty in recognizing and accepting as valid the fact that a major portion of the personality is not under voluntary control. They have not learned to feel at home with a knowledge of the structure and the function of the personality which includes the basic concept of the existence of an unconscious.

The psychiatrist considers the unconscious as a major area of the personality function. It is the source of one's life energy, instincts and primitive drives. The unconscious contains at birth the psychologic heritage of the organism which is characteristic of his species. It stores the accretions of the individual's development—the forgotten experiences and memories and all of the urges to forbidden activi-

ties and desires which are repressed because of parental influence, training, experience, social demands and culture. From birth through the first years of life the growing child develops a conscious personality through which he maintains contact with his environment. As he becomes a mature individual, he learns that society demands that he censor and direct the superior power and drives of the unconscious. To the conscious portion of the personality belongs the responsibility for seeing that the expressions from the unconscious conform to socially acceptable standards and approval.

Usually the first indication that the conscious personality cannot control the threatened escape of a primitive impulse or urge is a feeling of anxiety. The apprehensiveness, restlessness or fearfulness which are expressions of a conflict between unconscious pressure and conscious control can be resolved sometimes by changes in the environmental situation. Sometimes the conflict can be resolved if the individual gains a better understanding of the factors in his situation to which he is reacting. If the conflict is not resolved, the

personality is forced to utilize some type of automatic defense, of which there are many forms.

One defense is to channel the initial impulse into symptom expression—some disturbance of gastro-intestinal or cardiovascular function, curiously distorted fears, bizarre compulsive behavior, affections of motor or sensory or visceral functions, or any other so-called "neurotic" symptom. These represent a socially approved escape for the disapproved impulse. What is very important to understand is that the individual himself is no more capable of voluntary control of such symptom formation than of the rate of his heart beat. At times everyone manifests such neurotic symptoms. They do not represent ill health any more than does the minor impairment of any other biologic system. Many individuals, although they remain productive and creative, exist continuously only at a level of neurotic adjustment. In other words, the struggle within them is never resolved. When the defenses break down sufficiently so that neurotic symptoms cause incapacity, a diagnosis of some type of neurotic reaction is justi-

fied. Sometimes this may be an acute decompensation such as occurred during the war in combat in previously well integrated individuals. It occurs too, not infrequently, in civilians who are under acute emotional stress. On the other hand, there is the slow cumulative decompensation seen most clearly in the chronic neurotic invalid.

In both acute and gradual decompensation, severe neurotic symptoms are traceable to psychologic injury during infancy and early childhood. The personality of every adult bears some scars of emotional injuries in childhood. A deeper scar, resulting from a particularly traumatic event, represents a specially weak spot—an Achilles heel—which is more subject to later damage by an experience in adulthood similar to the one which caused the childhood scar. Under ordinary life situations, such weaknesses are not apparent either to the individual or to the observer.

We see wide variations in the type and degree of reactions of different individuals to the same situation. This fact is apparently confusing to many physicians. They recognize very well that a ty-

phoid inoculation may produce a violent reaction in one individual and no reaction in another. Consequently, it should not be surprising that a particularly emotional experience may produce an extremely neurotic reaction in one person but not in another. However, this phenomenon is often interpreted as being faked by the first person, on the basis that it did not produce the same reaction in a second person.

Too many doctors also seem unable to accept the validity of a neurotic illness, perhaps because of the scotoma for this field in their medical education. Since they have been taught that illness is physical, a neurotic illness is a paradox because there may be no physical findings, or the physical findings obviously do not explain the complaints. They may conclude that the problem is psychologic but withdraw in the face of ignorance of suitable treatment methods.

The intangibility of psychopathology in contrast to the visual evidence of physical pathology creates a kind of anxiety in some physicians. One of his responses is seen in the over-examination of a neurotic patient. If this process

were harmless, there might be less reason for concern. Instead, as a rule, it intensifies and tends to fix the neurosis. Even a minor physical finding can be used by the patient to justify his illness as a "real" (physical) one and enable him to escape the recognition that it is psychological. It should become axiomatic that one cannot compensate for a lack of understanding by making repeated physical or chemical examinations.

There are many approaches to the examination of the personality. Before mental illness can be diagnosed an investigation of the expressions of the mind and emotions is essential. Just as analysis of the urine pathology, an analysis of the emotional products of the mind, e. g., hostility, is an essential examination to reveal pathology of the personality.

Currently physicians rarely inquire about hate or resentment unless the patient forces this on their attention. Even

then they are prone to regard these as unrelated to his heart ailment. For instance, deep resentment or hatred towards some close associate is always indicative of serious conflicts within the individual's psychological life and may be reflected in many varied symptoms. Neurotic patients can help themselves in their recovery, but only after the doctor has stepped into their environment and helped them reestablish their equilibrium. The necessity to have the assistance of a second party, the physician, is due to the fact that the neurotic patient's difficulty is beyond his own control. He needs the help of someone in whom he has faith and confidence, who understands him, who will be patient with him and who will explain him to himself. Only then can he have the courage or the will power to examine his own psychology and thus aid in his own improvement.

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KAE:KOE



VETERANS AND MEDICAL EQUIPMENT

Nearly \$2,800,000 of valuable medical equipment—consisting of x-ray machines, electrocardiograph equipment, anesthesia apparatus and the like—has been repaired by Veterans Administration service and reclamation shops since the service was established on November 1, 1946.—*Release, Veterans Administration, Information Service, Washington 25, D. C.*

END RESULTS OF THERAPY IN VARICOSE VEINS

H. F. Robertson, M.B., B.Sc. (Med.), F.R.C.S., Toronto

Condensed from the Canadian Medical Association Journal

RECURRENCE of varicosities is frequent after any sort of operative procedure for incompetent varicosities of the lower limb.

A series of cases was reviewed at the Toronto General Hospital over a period from 2 to 7 years. No case counted as cured unless it had gone 3 years without a recurrence. A total of 102 cases with competent valves treated by injection therapy alone resulted in 97 recurrences. Of 33 cases of incompetent valves treated by injection therapy, 33 recurred.

High ligation, without retrograde injection, but usually with several injections 2 or 3 weeks after operation, resulted in recurrence of varicosities in 125 out of 132 cases. High ligation with retrograde injection seemed to give a little longer closure of veins. Of 23 cases treated, 21 showed new varicosities in 3 years. It is questionable to us if retrograde injection is worth the definite risks.

Triple ligation, at the groin and above and below the knee, was done in 5 cases with 5 recurrences. Wide excision of varicosities did not provide a 3-year cure in 10 of the 15 cases traced.

Vein stripping has been regarded by many as the answer to incompetent varicosities. Nine cases were traced and 9 recurrences noted.

Many recurrences could be prevented if the surgeon warned the patient to return as soon as any small varicose veins reappeared. The patient should be asked to report for inspection at 3, 6, 12 months etc. Most recurrences can be kept at abeyance by suitable injection treatment.

Each case of varicose veins should be individually studied. A great aid in this is concentrated diodrast with venograms done when indicated. Operations could then be planned according to the pathologic change portrayed in the venogram.

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LKF:CBH

STREPTOMYCIN IN THE TREATMENT OF PERITONITIS

By Major Edwin J. Pulaski, Colonel Sam F. Seeley and Captain Charles S. Matthews

Condensed from Surgery

A series of 63 cases of peritonitis has been treated with streptomycin and supportive therapy with favorable results. This series formed a heterogeneous group in respect to etiology, management, scheme of dosage and duration of therapy.

During the past decade the mortality of peritonitis has progressively decreased. Although part of the reduction in mortality is attributed to the general use of more effective antibacterial agents, the sulfonamide drugs, penicillin and streptomycin are by no means solely responsible. The period of general use of these agents coincides with other adjuvant measures including intestinal decompression, correction of perversions of the fluid and electrolyte balance, anticipation and correction of protein depletion and measures including intestinal decompression, correction of perversions of the fluid and electrolyte balance, anticipation and correction of protein depletion and measures to prevent as well as to treat

thrombophlebitis and phlebotrombosis with threatening pulmonary embolism.

Single organism peritonitis is relatively rare except in very young children when the organism is usually beta hemolytic streptococcus group A, pneumococcus, or gonococcus. The sulfonamide drugs and penicillin have reduced the mortality in this susceptible organism group. Polybacterial infection, comprising a variety of aerobic and anaerobic bacteria, is the rule in peritonitis due to perforation of the hollow viscera. Streptomycin has a potent antibacterial action on a wide variety of gram-negative and gram-positive organisms particularly those of gastro-intestinal origin. The drug diffuses into the peritoneal cavity following parenteral administration and has a potent therapeutic effect in peritonitis of polybacterial etiology.

There were no controls in this series. A patient was regarded as benefited by the use of streptomycin if he had a rapid, uncomplicated conva-

lescence which could scarcely be hoped for in the light of the disease process.

The patients were predominantly young males whose good health and excellent nutritional state suggested good resistance to infection. The majority were treated with intensive supportive therapy in addition to streptomycin.

Streptomycin alone was used in 21 cases with 3 deaths. One death was attributed to sepsis, and the other 2 to pulmonary infarct and subarachnoid hemorrhage respectively. In 42 cases streptomycin therapy was combined with penicillin and in some instances with sulfadiazene. In this group, there were 2 deaths which were of non-bacterial origin.

Of 39 patients with peritonitis of appendiceal origin, 17 had spreading peritonitis and 22 had localized peritonitis. Three patients were treated without operation and recovered as rapidly and uneventfully as the patients submitted to surgery. Treatment consisted of 0.5 Gm. of streptomycin intramuscularly every 4th hour for 14 days. At interval appendectomy 6 weeks after the original illness, no evidence of peritonitis was noted.

In the operative cases the clinical courses were somewhat similar; the infection was controlled, distention and rigidity subsided, ileus disappeared and gas was passed by rectum by the 4th day postoperatively. The patients were free of discomfort, were on a selected diet and exhibited a normal pulse and temperature by the 10th day. In one patient with what appeared to be pylephlebitis following appendectomy and drainage of an abscess, the drug was considered lifesaving. In the operative group, 4 patients developed residual abscesses which resolved on streptomycin therapy. Twelve patients with spreading peritonitis were treated with streptomycin and penicillin supplemented in two cases by sulfadiazine with strikingly good results in every case.

Of 24 patients with non-appendiceal peritonitis 7 were treated with streptomycin alone, with one death from sepsis in a patient with multiple gunshot wounds. In 2 cases results were excellent. In the others, improvement was slow or followed some surgical procedure. Seventeen were treated with streptomycin and penicillin with or

without sulfadiazine with 2 deaths, neither from sepsis. Both occurred in patients with vascular collapse following stab wounds of the abdomen.

The 2 septic deaths in the entire series of 63 cases occurred in patients who were moribund when first treated with streptomycin. Eighteen of 58 patients who recovered were treated with only streptomycin. The remaining 40 were treated with streptomycin and penicillin supplemented in 10 cases by sulfadiazine. In several, recovery was smoother and more rapid when the streptomycin was used in combination with penicillin. There was no instance of any cumulative effective attributed to streptomycin and sulfadiazine in combination. Immediate dramatic results were not the rule with or without penicillin. Streptomy-

cin was found more effective in early spreading peritonitis. While results were less striking in infections which had already localized, resolution occurred more rapidly in such cases when penicillin was used also.

In the series, the streptomycin dosage varied from 1.0—4.0 Gm. daily in divided intramuscular doses and the penicillin dosage varied from 120,000—600,000 units daily. The dosage of sulfadiazine was 6 Gm. daily. Patients who received 3.0 Gm. per day of streptomycin or 2.5 Gm. per day with 480,000 units of penicillin had the most satisfactory postoperative convalescence. The response to streptomycin therapy was practically always indifferent when inadequate doses were used (1.5 Gm. per day or less).

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PENSIONS FOR VETERANS

Effective March 1, Veterans Administration will pay a 20 percent increase in pensions for veterans of the Indian Wars and in death pensions to their dependents.

The increase was voted by the current session of Congress and signed into law by President Truman on January 19. Similar 20 percent increases were granted to veterans and dependents of the Civil and Spanish-American Wars in August, 1947.—*Release, Veterans Administration, Information Service, Washington 25, D.C.*

ACUTE SUPPURATIVE TENOSYNOVITIS TREATED WITH SYSTEMIC PENICILLIN

C. Nigel Cruickshank and Stewart H. Harrison, England

Condensed from the Lancet

THIS report states the results of treating 13 consecutive cases of acute suppurative tenosynovitis of the fingers with intramuscular penicillin during 1946. These results were contrasted with those obtained in an equal number of cases selected at random treated without penicillin in 1943.

Ten of the 13 cases were frankly purulent, but the minimal criteria for inclusion in this series was the presence of an excess of clear fluid in the sheath at operation. In 9 cases there was a history of minor injury. In 3 cases there were classical primary tendon-sheath infections, the remainder being complications of either finger-pulp infections or superficial abscesses.

The infecting organisms were *Strep. pyogenes* and *Staph. aureus*.

Treatment included mini-

mal incision, systemic penicillin, and early active movements. When the diagnosis was made the sheath was incised in the palm. Intramuscular penicillin was given immediately after operation in three-hourly doses of 12,500 units of and continued until 1,000,000 units had been given in ten days. Patients were encouraged to exercise their fingers.

The results indicate a reversal of the prognosis of acute tendon-sheath infections in that 8 of the penicillin-treated cases proceeded to full functional recovery, whereas 9 of the "untreated" cases required amputation. The reduction in the duration of disability was striking.

The use of systemic penicillin in conjunction with minimal surgery is advocated in these cases.



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(Lancet, October 25, 2: 606-608)

LKF:CBH



¶ It is dainty to be sick, if you have leisure and convenience for it.—Emerson

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DIGEST OF TREATMENT

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BACK PAIN FROM THE GYNECOLOGIC STANDPOINT

By Earl B. King, M.D., San Francisco, Calif.

Condensed from California Medicine

THIS is a review of the common gynecologic conditions which may cause back pain. If a patient has a pelvic lesion and also complains of back pain, appropriate treatment for the pelvic trouble will sometimes relieve the complaint of backache. All too often, however, the back pain has little or no connection with the condition of the pelvis, and a careful urologic or orthopedic, or neurologic examination will uncover the true cause for the discomfort. It has been stated that the backache in less than half of all women is due to disturbances in the pelvic organs or to abnormalities in the kidneys. It is also generally held that back pain of pelvic origin is localized to the sacral area, and that pain above this region is not caused by pelvic pathology.

A uterus that is normal in size, shape and mobility, but has assumed a retroposition, practically never gives rise to back pain. This fact has been established by gynecologists in observing the large number of women who have a com-

pletely asymptomatic retroposed uterus, along with the disappointing results in follow-up observations on women who have had suspension operations done for the supposed cure of backache. If a uterus in retroposition is suspected of causing back pain, the patient should be fitted with a pessary. Should this maneuver relieve the pain, while it recurs when the pessary is removed, an operation may be considered.

It is quite unlikely that relaxation of the introitus or prolapse of an ovary will cause backache.

A chronic cervicitis, particularly where a boggy, hypertrophic cervix is present, will cause not only the local symptom of leukorrhea but often will be responsible for an associated inflammatory reaction in the pelvic lymphatics, particularly along the course of the uterosacral ligaments. When this latter condition is present, as evidenced by thickening and induration along with pain and tenderness of the uterosacral ligaments, the patient often complains of

back pain. Many of these patients will respond to appropriate local therapy in the form of hot douches or cauterization of the cervix. Occasionally amputation of the infected cervix will be necessary.

In the case of inflammatory involvement of the upper generative tract, either acute or chronic, we often find backache to be a complaint, though it is seldom the chief one. In the differential diagnosis between acute pelvic inflammatory disease and appendicitis, the presence of backache is suggestive of the former diagnosis.

Malignant tumors of the pelvic organs will occasionally cause back pain, either from direct extension into the surrounding tissues or from metastasis to the lumbar spine or sacral area.

Endometriosis generally gives rise to pain which is located deep in the pelvis, but occasionally backache is a prominent symptom. In such

cases one is likely to find that the posterior surface of the uterus and the cul-de-sac are involved, and that there are dense adhesions running to the rectum and the posterior parietal peritoneum.

Pre-menstrual tension is sometimes associated with a dull low-back pain. The cause of the pain is difficult to determine; it may be due to congestion as a result of increased pelvic circulation and an associated edema of the pelvic tissues. Ammonium chloride given in doses of one gram three times a day during this period may be helpful.

Dysmenorrhea is seldom associated with back pain unless there is actual pelvic pathology. With these patients the backache is likely to be inconsequential compared to the lower-abdominal pain.

Back pain may, of course, be caused by psychogenic states. Psychiatric help should be requested whenever it appears to be indicated.



SYMPTOMS DUE TO MECKEL'S DIVERTICULUM

By Selwyn Taylor, F.R.C.S.

Condensed from the Lancet

MECKEL'S diverticulum is an uncommon congenital abnormality, which has an incidence of about 1.3 per cent in all individuals. It is seldom if ever incriminated before operation. We present a study of 11 cases in which it was the actual cause of symptoms which necessitated surgical intervention.

ACUTE SYMPTOMS. Intestinal obstruction is the commonest complication; it is due either to direct pressure on a loop of gut or to an actual volvulus caused by the rotation of gut round a diverticulum attached at its tip to the abdominal wall. The prognosis depends on how early the obstruction is treated.

Inflammation or diverticulitis, sometimes progressing to perforation, simulates appendicitis so closely that the correct diagnosis is unlikely to be made. In favorable circumstances a Meckel's diverticulum may be demonstrated radiologically.

Intussusception is a particularly lethal complication of Meckel's diverticulum. Though it occurred twice in

our series, it is not commonly found. Ulceration of heterotopic gastric mucosa can occur; there was one case of this in the present series. A foreign body is occasionally met with in an inflamed Meckel's diverticulum, and has probably the same significance as a foreign body in the inflamed appendix. Neoplasm is a rare complication, but one—a leiomyoma—occurred in our series, causing repeated melena.

All the above complications manifest themselves in some form of an acute abdomen. I have found no record of a Meckel's diverticulum causing chronic or subacute abdominal symptoms. This is all the more surprising when it is remembered that any diverticulum of a hollow viscus is a potential source of pain if it is distended.

It is in those patients with a not too clear-cut clinical picture of appendicitis that the condition is most likely to be encountered. The diverticulum can frequently be demonstrated by X-ray studies.

I do not agree with those

who favor removal of all Meckel's diverticula encountered at laparotomy, as the majority of them do not produce symptoms.

LOCATION. The commonest situation for this developmental error is 18 inches from the ileocecal valve. It has often been discovered 12-36 inches from the end of the ileum. Therefore, unless the

whole terminal 3 feet of ileum is inspected, it may be overlooked.

I believe that Meckel's diverticulum should be looked for more often and more carefully, especially in laparotomies where the other abdominal organs do not appear sufficiently abnormal to explain the signs and symptoms.

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LKF:HBJ



WORK OR FIGHT IN NEXT WAR

It will be work or fight for all of us in the next war, with expected civilian casualties running so high that large numbers of doctors must be kept at home to care for them. This is the picture drawn by Army, Navy and civilian medical authorities at the meeting of the Council on National Emergency Medical Service of the American Medical Association in Chicago.

"Every ounce of available manpower will be needed," Rear Admiral Morton D. Willcutts declared. "Selective Service rejections during the last war at times exceeded 40% of those registered. That won't do in the next war.

"Those with chronic diseases, even of the psychiatric type, must find their stride and fight or work," he warned.

The Pearl Harbor blow of the next war, he forecast, will come as a special weapon for mass destruction. Whether this will be an atom bomb, a chemical agent or some unnamed weapon he said was beyond his province to name. But the death rate, he declared, will be "appalling" and the question of disposal of the civilian dead will be formidable. The new weapon will leave persistent agents of destruction so that to re-enter or approach them will be dangerous.

A total of 116,000 physicians, or one to every 1,250 of the civilian population, is the civilian medical manpower need expected civilian casualties running so high that large numbers of

tion's council.—*Science News Letter*, April 17, 53: 246, 1948.

THE TREATMENT OF GRANULOMA INGUINALE WITH STREPTOMYCIN

By Harold L. Hirsh, M.D., and S. Ross Taggart, M.D., Washington, D. C.

Condensed from the American Journal of Syphilis, Gonorrhea and Venereal Disease

GRANULOMA inguinale is a venereal disease of unknown etiology, and the treatment of it in the past has been quite unsatisfactory. Antimony compounds such as tartar emetic and fuadin, alone or in combination with escharotic agents, irradiation, or surgery have been employed. Only a small number of patients were apparently cured. In most patients there was only temporary improvement with relapse shortly after treatment was discontinued. Not infrequently the lesions spread while the patient was under treatment.

Several months ago we learned that Greenblatt and his associates had successfully treated 23 patients with streptomycin. On the basis of the results of this investigation we undertook a study of the use of this antibiotic in the treatment of our patients with granuloma inguinale.

We have treated a total of 21 patients without selection. Streptomycin therapy was instituted as soon as the diagnosis was made. In all patients

the diagnosis was established by demonstration of Donovan bodies with Wright's stain of smears of scrapings of the involved tissue. Since our supply of streptomycin was limited, all patients were started on 1 Gm. of streptomycin per day in divided doses every 4 hours intramuscularly.

All the patients were Negroes. There were eleven men and ten women. The ages ranged from 19 to 48 years, twelve patients were less than 30 years of age. Fourteen of the patients had had evidence of the disease for periods of time varying from one to eight months, while in the remaining seven patients the lesions had been present for fourteen months to twelve years. Nine patients had previously received varying amounts of fuadin and tartar emetic, with only partial or temporary improvement during treatment.

RESULTS. Treatment has been completed in all of the patients. The total dose ranged from 5 to 47 Gm. of streptomycin. In all of the patients

there was complete healing of all ulcerations before treatment was discontinued, except in the case of a patient with squamous cell carcinoma at the same site. The granulomatous masses decreased in size, so that most of the masses became at least one-half as large as before treatment was started. The follow-up period for these patients has now been for periods of time up to fourteen weeks. There has been no evidence of relapse or recurrence in any of the patients, while the granulomatous masses continue to decrease in size.

Certain characteristic changes were noted during treatment in the patients with extensive lesions. Within 24 to 48 hours after the start of therapy the lesions became essentially painless. At the start of therapy the lesions were invariably red, shining, and angry in appearance. After several days they became paler and less intense and showed evidence of healing. At the end of a week they were violet or purplish in color. By this time the skin was growing in from the margins of the ulcers. The central areas were the last to heal. The granulomatous masses

began to decrease in size after a week or ten days of therapy and continued to do so after treatment was discontinued. Streptomycin was not stopped until the lesions were covered by skin which was invariably depigmented.

The time necessary for complete healing was directly proportional to the extent of the disease so that this course was abbreviated in patients with small lesions. Moist, ulcerative lesions that were apposed, or in contact with one another, or bathed by vaginal discharge healed more slowly.

Biopsies of the lesions were taken on all patients at weekly intervals until therapy was discontinued, and the tissues studied for the presence of Donovan bodies. Although they still could be demonstrated at the end of one week of therapy, none has been found in the two-week specimens.

Only one patient had what appeared to be a toxic reaction to streptomycin. She began to complain of headache, dizziness, and tinnitus one week after streptomycin was begun. These symptoms persisted for several days and then disappeared spontaneously without any change in

therapy and without any apparent residua.

It is too early to endorse completely the treatment of granuloma inguinale with streptomycin, as the number of patients treated to date is small and the follow-up period short. However, never has any form of therapy consistently produced such a change in the course of disease as has streptomycin. This is evidenced by the complete healing of the most extensive ulcerations, diminution in size of the granulomatous masses and disappearance of Donovan bodies.

There are still some problems to be solved in the use of streptomycin, particularly the total daily dose and the duration of therapy. All of our

patients received a total dose of 1 Gm. of streptomycin a day. Since we found the concentration of streptomycin in the blood to be between 5 and 10 micrograms per cc. at the fourth hour in some patients who were receiving 1 Gm. per day divided equally in four hourly injections, it would appear unwise to reduce the daily dose below one gram.

Whether treatment need be continued until the lesions are completely healed or may be discontinued earlier requires further study. In any event, it would seem reasonable to discontinue streptomycin when the Donovan bodies can no longer be demonstrated regardless of the condition of the lesions.

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DMP:KOE



TEST FOR CANCER

A NEW test for detecting cancer in time for successful treatment may come from studies at the Warwick Memorial Clinic of Washington, D. C.

Cancer of the stomach, is one kind that the new test might pick up. The test would be made by measuring the amount of vitamin A in the blood. If this is less than normal, the person would be given vitamin A either by special diet or capsules or both.

Basis for the test is the finding some years ago by the late Dr. J. Abels of Memorial Hospital, New York, that 87% of patients with certain kinds of cancer, including stomach cancer, had blood low in vitamin A.—*Science News Letter*, March 13, 53: 168, 1948.

RATIONALE OF PARENTERAL GLUCOSE FEEDING IN THE POSTOPERATIVE STATE

By M. D. Pareira, M.D., and M. Somogyi, Ph.D., St. Louis, Mo.

Condensed from the Annals of Surgery

GLUCOSE serves two purposes in the postoperative state if it is administered properly: it acts to prevent starvation ketosis, and to minimize protein catabolism by exertion of its protein-sparing effect.

Ketosis always occurs when the liver lacks adequate glycogen stores. If ketosis develops and is allowed to persist, it leads to a progressive deterioration of the architecture of the hepatic cell. This impairs or destroys the enzymatic reactions and the immunologic functions of the liver.

Lack of hepatic glycogen also compels the body to burn increased amounts of protein and fat. Depletion of the protein reserves of the liver is as harmful to normal liver function as exhaustion of the glycogen stores, both being essential elements in the normal physico-chemical structure of the liver cell.

In the immediate postoperative period one or more of three factors may be conducive to hepatic glycogen deficiency: One factor is the gly-

cogenolytic effect of certain anesthetics, which accelerates the conversion of liver glycogen into blood sugar and thereby substantially depletes the glycogen reserve. A second factor is the frequent inadequacy of oral food intake directly after operation which leads to rapid exhaustion of the hepatic glycogen content. A third factor may be the surgical disease itself, especially if it be one with which inanition, hepatitis or circulating hepatoxins are associated.

Appropriate preoperative dietary measures, in addition to protecting the liver against injury by anesthesia, help to counteract the ill effects of postoperative difficulties in the feeding of the patient. But regardless of how well the liver had been stocked with proteins and glycogen, the reserves are rapidly exhausted; hence it is necessary to resort to parenteral glucose feeding as soon as possible following operation in order to prevent ketosis. This parenteral alimentation is necessarily linked with supply-

ing the necessary amounts of water and electrolyte.

The amount of glucose needed in the postoperative period is decided by the purposes of its administration. Its primary purpose is to provide the liver with enough glycogen for the prevention of ketosis. Our studies have shown that on an average of 200 Gm. of glucose per 24 hours will serve this purpose, providing that it is well spaced throughout the period. But while the administration of this amount of glucose may suffice to prevent ketosis, it will not supply the total energy requirements of the body; as a consequence, undue quantities of protein will be consumed for fuel. By the simple means of increasing the glucose supply one can spare appreciable amounts of protein from being wasted in this manner, with the additional advantage of preventing the formation of ketone bodies in the course of protein catabolism. Therefore, simply as a means of good physiologic economy, it is desirable to supply from 200 to 350 Gm. of glucose per 24 hours. The upper limit applies to cases with known or suspected liver damage, and to cases in which

a poor nutritional state could not be remedied prior to operation.

To meet and yet not to exceed the postoperative fluid needs, the necessary amount of glucose should be given in solutions of not less than 10% concentration. Five per cent solutions often will not meet the physiologic needs. The amount of glucose being thus limited, ketonuria is in many instances inevitable.

We wish to stress the necessity of close observation for ketonuria throughout the preoperative, and the critical days of the postoperative periods, starting with the first urine specimen obtained after the operation. Ketosis must be prevented, or if it emerges, it must be abolished at its very inception. Severe forms of ketosis may lead to acidosis.

We have not seen thrombosis any more frequently with a 10% concentration of glucose than with weaker solutions. Furthermore, we have found no evidence to support the view that 10% glucose solutions cause diuresis. If the rate of infusion is adjusted to correspond with the rate of assimilation, excessive hyperglycemia and consequent glycosuria will be prevented, and

hence diuresis will not occur. In most instances it is only necessary to keep the rate low (20 to 25 Gm. per hour) during the first hour or even half-hour, following which it can be safely increased to a rate of 50 Gm. per hour, until the infusion is completed.

All urine specimens obtained during, and for several hours after infusions are analyzed quantitatively for sugar content. In those patients who at any time show more than minimal glycosuria, and in those who are suspected of

severely depressed glucose tolerance, quantitative urine sugar determinations are made at frequent intervals during the course of infusion; and the rate of infusion is not accelerated until glycosuria is absent.

If the loss through glycosuria amounts to 10% or more of the glucose infused, the use of insulin is indicated. The same holds, of course, for diabetic patients. Insulin in these cases is of great service, but can do as much harm as good.



LKF:HBJ



GEOGRAPHY MAY INFLUENCE BALDNESS IN YOUNG MEN

BALDNESS in young men seems to go by race, or perhaps by geography. At any rate, Dr. R. E. G. Armattoe of the Lomeshie Research Center, Londonderry, Ireland, stated in a report sent to the meeting of the American Association of Physical Anthropologists that he has found more young men with bald spots in Sweden than in France. While premature baldness in Sweden is commonest among educated men, Dr. Armattoe does not attribute it to excessive brain work.

This lack of hairiness in Sweden, however, works to the advantage of the opposite sex. Very few of the creamy-complexioned Swedish blondes have the hairy upper lips that often trouble their sisters in the British Isles.

"The need for the study of premature baldness from the point of view of occupation, etc., is self-evident, as many such men crowd hairdressing establishments in the hope of being cured," Dr. Armattoe pointed out. "Millions of dollars are spent each year in the vain attempt to regain lost youthful looks."—*Science News Letter*, April 10, 53: 233, 1948.

NIGHT CRAMPS IN HUMAN EXTREMITIES

By H. K. Moss, M.D., and L. G. Herrmann, M.D., Cincinnati, Ohio

Condensed from the American Heart Journal

W E have studied a group of 20 patients with "night cramps," who have been followed in the Vascular Disease Clinic of the Cincinnati General Hospital over a long period. Our purpose has been to investigate both the site of action of the drug and the physiologic factors responsible for the onset of cramps.

MATERIAL. The patients used in this study were referred by other clinics specifically for the care of "night cramps." Ten of them were diabetics, and five were being treated for varicose veins of the legs or gave a history of having had varicosities. In addition, we have found a history of peripheral venous thrombosis or thrombophlebitis in many of our private patients who had "night cramps." Serious arterial deficiency was found in only 4 of the patients in the group.

Avitaminosis, as evidenced by paresthesias of the extremities, was common, particularly in the older patients. In those in whom night cramps and avitaminosis coexisted, the muscle cramps were re-

lieved first by quinine before vitamin therapy was instituted; or thiamine chloride and yeast were administered initially and continued while the quinine and placebo capsules were alternated. In no instance did vitamin therapy alone relieve the cramps.

METHOD, DOSAGE AND RESULTS. Quinine sulfate 3 gr. (0.2 Gm.) a placebo, and prostigmine bromide, 7.5 or 15.0 mg., were prepared in identical capsules. Patients were started with either the placebo or quinine sulfate originally; if the latter, the placebo was substituted as soon as relief of the night cramps was noted. Three grs. of quinine sulfate were experimentally established as the initial therapeutic dose, and were administered after each meal. The morning dose was of little benefit, except to those experiencing muscle cramps while resting during the day. Three grains of quinine at bedtime were sufficient in some instances; two grains were insufficient for most patients. Faster-acting quinine dihydrochloride was given

some patients at bedtime where cramps appeared promptly after they retired. Later, three grains of quinine sulfate after supper supplemented by a similar dose at bedtime proved equally beneficial. Relief was obtained on the first or second night in most cases.

Night cramps are usually periodic regardless of treatment. Relief was prompt in all cases treated with quinine, however, and pain recurred so often with placebo capsules, that there could be no question as to the specific action of the drug in this condition.

In those patients who came to the clinic complaining of night cramps and received prostigmine bromide before the quinine, no alteration in the frequency or intensity of the cramps was acknowledged by any of the patients. The dosage of prostigmine used was adequate to produce other physiologic effects, the most interesting of which was peripheral vaso dilatation. Patients with peripheral arteriosclerosis, while reporting no change in muscle spasms at rest, volunteered the information that their extremity "no longer felt cold," or that "the heaviness" had left, or that

"life was back" in a toe which had been numb. Spontaneous burning pains often were abated or were reduced in intensity.

Another effect of prostigmine was its action on joints with hypertrophic arthritis. We noted beneficial response with relief of pain and stiffness of the joints within 20 to 30 minutes of the subcutaneous injection of prostigmine methylsulfate. Patients called our attention to increased motion in an ankle joint which had been restricted for years, or reported increased mobility in knees or feet. The action may be one of relaxation of periarticular tissues through vasodilatation, similar to that produced by short-wave diathermy treatments.

DISCUSSION. Our clinical observations with quinine point toward direct action upon muscle. First, prostigmine failed to initiate or increase the frequency of muscle cramps. Second, the physiologic circumstances attending the onset of cramps seemed to be related to metabolic conditions within the muscle at the time of onset. Most interesting was the coincidence of both intermittent claudication and night cramps in 4 pa-

tients. In all of them, the muscle spasm at rest was completely relieved by quinine sulfate, while the intermittent claudication on exertion remained unchanged. We believe that the muscle spasm in these patients resulted from the stimulation of the muscle by metabolites, which accumulated as a result of venous stasis, or by the products of abnormal muscle metabolism such as is observed in patients with diabetes melitus.

The high incidence of mus-

cle cramps in pregnant women might be associated with the increase of venous pressure in the legs, and is consistent with the concept of an arterio-venous communication in the placenta. If we are correct in the assumption that metabolites stimulate the muscle and cause cramps, one should expect an increase in metabolic by-products after exercise. Almost every patient noticed that muscle cramps at night were most severe following unusual activity during the day.

CLB:HBJ



THROMBOSIS OF SMALL PULMONARY VESSELS IN CONGENITAL PULMONARY STENOSIS.

An autopsy study of 21 cases of tetralogy of Fallot at the Johns Hopkins Hospital revealed that 90 per cent had widespread and progressive thrombosis of pulmonary vessels of microscopic size. The predisposing factors appeared to be the increased blood viscosity resulting from the compensatory polycythaemia, and the reduced rate of flow in the pulmonary vessels resulting from the greatly diminished amount of blood delivered to the pulmonary vascular system. It is possible that this condition is an important contributory cause of the cyanosis associated with the cardiac lesion and also that it may interfere to a significant degree with the benefit derived from the Blalock operation. —Arnold R. Rich, M.D., *Baltimore. Bulletin of the Johns Hopkins Hospital*, March, 82: 389-395, 1948.

LBL:LBL

THE DETERMINATION OF THE PROGNOSIS OF PREGNANCY IN RHEUMATIC HEART DISEASE

By Joseph J. Bunim, M.D., and Jeanette Rubricius, M.D., New York, N. Y.

Condensed from the American Heart Journal

THE opportunity to observe the clinical behavior of women with rheumatic heart disease who go through pregnancy made it possible for us to examine and evaluate the criteria recommended for selecting the good from the poor risks. This paper is essentially an exposition of a basic principle of determining prognosis of pregnancy, not by several arbitrary rules or physical signs alone, but by establishing what position the individual patient occupies in the natural course of rheumatic heart disease.

CLINICAL MATERIAL. A prenatal cardiac clinic was established at Bellevue Hospital in 1939 and has been conducted jointly by the Departments of Medicine and Obstetrics of the Third Division. Sessions were held in the general prenatal clinic, making it convenient for the patient to be seen by the obstetrician and the cardiologist during the same visit.

From October, 1939, to July, 1945, 131 women were observed through pregnancy and

puerperium. In eleven other cases pregnancy was interrupted because the prognosis was considered unfavorable. In each of these cases sterilization was urged, for it was felt that one who was already a poor risk would be unlikely to improve as her heart disease advanced.

The 131 patients were delivered of 133 babies. There were 83 spontaneous deliveries, 39 forceps, and eight breech deliveries. Cesarean section was performed on three patients for strictly obstetrical reasons. We could see no indication to recommend this procedure on a cardiac basis.

OBSERVATIONS. *Maternal Mortality.* There were two maternal deaths in our group. One of our patients, 20 years of age, died of a staphylococic bacteremia during the fifth month of her first pregnancy. There was no discoverable focus of infection. The other patient, 33 years of age, died of heart failure in the ninth month of her seventh pregnancy. This patient was first

seen by us at the end of her sixth pregnancy. At this time she manifested symptoms of diminished cardiac reserve and sterilization was therefore advised. The patient did not consent to this procedure. She reappeared during the twenty-seventh week of her next pregnancy in congestive failure but after several days of intensive treatment she insisted on leaving the hospital. Several weeks later, the physician who had attended her at home reported that she died undelivered.

INFANT MORTALITY. The mortality rate for infants of mothers with compensated heart disease was not significantly higher than for infants of normal mothers. The mortality rate for infants of mothers with congestive heart failure, however, was 30 per cent, whereas in the compensated group it was 9 per cent and in those with normal hearts, 7 per cent.

CONGESTIVE HEART FAILURE. Eighteen of the 131 patients developed congestive failure during pregnancy, an incidence of 14 per cent. Failure occurred most frequently during the second half of pregnancy. It should be noted that more instances of failure oc-

curred in the last lunar month than in any preceding month.

A close relationship was observed between the limits of cardiac reserve that existed before pregnancy and the incidence of failure during pregnancy. Only one of the 82 patients in Class I and Class II had congestive heart failure, whereas seventeen of the 49 patients in Class III and Class IV presented this complication.

A history of previous failure was likewise found to be significant. Every patient who decompensated during a previous pregnancy did so again during the observed pregnancy. However, 9 per cent of those who had never had failure before developed it during the observed pregnancy.

It has been stated that when the aortic valve is damaged the patient faces a greater risk during pregnancy than when the mitral valve alone is involved. Our experience does not confirm this observation. Failure was more than twice as common in patients with mitral valvular disease alone than it was in those who had aortic or combined aortic and mitral valvular disease.

DISCUSSION. The natural his-

tory of rheumatic heart disease may be said to consist of four phases: (1) an initial infection which may be manifested by carditis, polyarthrititis, chorea, or muscle and joint pains; (2) one or more recrudescences which, like the primary episode, may follow a hemolytic streptococcic infection; (3) an inactive period, lasting usually from puberty or adolescence to the fourth or fifth decade, in which there are usually no recurrences or evidence of decreasing functional capacity; and (4) a diminution in cardiac reserve leading progressively to congestive heart failure and later death.

Phase 1, the initial infection, usually occurs in childhood. Phase 2, recurrences of rheumatic fever, rarely complicates pregnancy. Phase 3, the period when the heart disease is inactive, is the one during which pregnancy usually occurs and this explains why the majority of patients do well when under intelligent obstetrical care. Phase 4, diminished cardiac reserve and failure, is seen in less than one-fourth of the pregnancies. It is of utmost importance to recognize when a woman who is pregnant or

contemplating pregnancy is approaching this phase. Cardiac failure ranks first among the causes of maternal deaths in patients with heart disease and is the only cause amenable to therapy, especially when detected early. In addition, as has been demonstrated, the chances of having a live baby are dependent to a large degree on the mother not developing heart failure.

EFFECT OF PREGNANCY ON DURATION OF LIFE. The question of whether pregnancy alters the course of rheumatic heart disease or shortens the life of the patient is of fundamental importance. A careful analysis made by Cohn and Lingg, who compared the clinical course and life span of 169 women who bore one or more children and 215 nulliparous women, has indicated no significant difference in the clinical course, the rate of development of congestive heart failure, the duration of life from onset of disease to death, and the age of death in the two groups.

AGE. Patients with rheumatic cardiac disease, regardless of parity, are more prone to fail as they get older.

DURATION. If the time of onset of heart disease were

known, then the duration from onset to pregnancy would undoubtedly be more dependable as a prognostic guide than the absolute age of the patient.

ENLARGED HEART. That the heart actually increased in weight during pregnancy could not be clearly demonstrated. Thus it is likely that

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pregnancy causes no permanent cardiac enlargement.

MULTIPARITY. When allowance was made for the duration of heart disease (longer in multiparas) and the physical effort spent in obstetrical labor (greater in primiparas), we could find no evidence that parity, per se, had any significant effect on the prognosis.



IDENTIFYING GIs' BONES

The sad task of bringing back the remains of Americans who died in service overseas is being helped by physical anthropologists, the scientists whose job is the close study of the human body and the bones that are in it. Men of this discipline have been able to assist in identifying the bodies, or even the bare bones, of fallen soldiers whose "dog-tags" and personal papers had become lost in the turmoil of modern battle.

At the meeting of the American Association of Physical Anthropologists in Washington, Dr. H. L. Shapiro of the American Museum of Natural History, who was active in setting up the identification service of the Army, told of some of the problems the scientists faced. In some instances it even went so far as to require the sorting out of non-human bones from among human ones. This occurred when the untrained soldiers who did the actual disinterring of hasty battlefield burials came upon the bones of dead farm animals.

In one case an anthropologist was able to prevent what would have amounted to actual grave-robbery. A number of American fliers, killed when their planes crashed during a flight over Vienna, were buried in a Viennese cemetery. Their graves were properly marked and recorded, but the digging squad who exhumed their remains proved too zealous, and brought up also the bones of earlier burials at a deeper level. When the anthropologist protested that some of the bones were female, the soldiers did not want to believe him. However, the production of scraps of women's clothing settled the matter.

Sometimes the scientists have been able to show that a lot of missed bones represent two persons instead of one. Two skulls would indicate that to anyone, but the layman might not notice duplicate left collarbones, or two shoulderblades or shinbones that don't match.

Dentists' records, said Dr. Shapiro, are often exceedingly helpful, sometimes leading to positive identification.—*Science News Letter*, April 24, 53: 261-262, 1948.

A NEW SYNTHETIC ANTI-HISTAMINIC SUBSTANCE, ANTISTINE

By C. J. Heinberg, M.D., Pensacola, Fla.

Condensed from the Eye, Ear, Nose and Throat Monthly

THE desire to give relief and palliate a number of allergic conditions causes one to be on the alert for any new substance which will produce this desideratum. Antistine is a synthetic anti-allergic substance, the use of which will be discussed.

Antistine is prepared in three different forms: a. Eye drops containing 0.5% antistine in combination with sodium carbonate, boric acid and potassium chloride with distilled water QS. It is also used in solutions of 0.025% prudine or 5/10% antistine plus 0.1% prudine. b. Tablets containing 100 mg. antistine and c. Ampules containing antistine 100 mg. per 2 cc.

Antistine has a definite use in ophthalmology. Bourquin states that he treated thirty-seven cases of chronic conjunctivitis, vesicular conjunctivitis, conjunctivitis of allergic origin, a bacterial conjunctivitis, conjunctivitis due to hay fever, catarrhal conjunctivitis, scleritis, etc. in which antistine was used as an eye wash. He states that photophobia, itching and lacrima-

tion were favorably influenced after administration of the drug. Even when severe inflammation was present, the vessels of the conjunctiva contract and redness decreases. In one case of allergic scopolamine eczema of the eyelid, and in another of conjunctivitis due to hay fever, the marked anti-allergic activity of locally applied antistine medication was revealed. The antistine plus privity eye drops produced temporary smarting. Antistine and antistine privity may be combined with other substances such as penicillin, zinc sulphate, argyrol, mydriatics and myotics. It is not contraindicated in glaucoma. Antistine and antistine privity therapy afford symptomatic relief but permanent cure from allergic conditions cannot be expected. Nevertheless, in certain cases it is of great value since it may bring relief to patients suffering from allergic conditions. Because of its low toxicity it is recommended in all allergic conditions of the eye. The ampules of antistine may be injected intravenously or

intramuscularly. Intravenous antistine should be administered slowly in order to avoid disagreeable side effects such as feeling of warmth, etc. Intramuscular injections are not painful. Toxic reactions were not seen, possibly due to the fact that patients with allergic conditions tolerate rather large amounts of anti-histaminic substances. The tablets are well tolerated if they are taken during meals. In our series of cases there was no evidence of any toxicity either local or general in any of the cases to which antistine was administered regardless of the form of administration of the drug. The use of antistine drops in palpebral edema of allergic origin demonstrates a rapid relief of symptoms. This should be followed by allergic investigation as to the causal agent.

The specific effect on antistine is its antagonism to histamine which has been determined on tests on isolated organs as well as on the whole animal. R. Meier and K. Bucher state that the protective effect against histamine was tested by experiments on the isolated intestine of the guinea pig, on the isolated perfused hind leg of the rabbit

and on the respiratory tract of the intact animal. From the results of experiments it was determined that antistine, when applied locally as well as generally, has an anti-histamine action.

The itching and swelling produced by histamine in its liberation in allergic patients is quite an annoying symptom. In proper doses antistine will reduce or counteract the itching in urticaria, eczema, neurodermatitis, prurigo, lichen ruber planus, psoriasis and nervous pruritis without skin changes and in scabies. Doses which cause temporary mild dizziness may have to be employed if complete suppression of the itching is desired. In urticaria not only the itching is suppressed but the skin changes are either counteracted or prevented. Direct influence on the skin changes could not be proved in eczema, neurodermatitis, prurigo and the other skin defects. The indirect therapeutic effect is considerable, since by suppressing the itching, antistine facilitates the effectiveness of other treatments. Antistine seems to suppress the itching regardless of whether the itching tendency is elicited by sympatheticotonic or parasymp-

pathicotonic factors, which seems to indicate that the itching is always produced by histamine substances. As is indicated by local skin tests, antistine probably exerts its effect chiefly by its peripheral influence on the vasomotor action that elicits the itching, in

that the liberated histamine or the corresponding histamine substance is prevented from exerting its effect.

"ANTISTINE" is manufactured by Ciba Pharmaceutical Co. At the present time it is available for experimental use only.

FOH:RDD



MALIGNANT CARCINOID OF THE JEJUNUM

A case of multiple malignant carcinoid of the jejunum occurring in a 47-year old negress which produced partial intestinal obstruction, intussusception, and metastases to the mesenteric lymph nodes and liver is reported. The majority of writers agree that carcinoids arise from argentaffin cells of the crypts of Lieberkuhn. Up to 1944, 321 cases have been reported. They are most frequently found in the appendix.

The authors reviewed 283 cases and 10% occurred in the jejunum. Of these, 25% produced metastases. The diagnosis is rarely made. Typically there is long standing progressive partial intestinal obstruction. These carcinoids infiltrate through the wall of the bowel and involve the serosa and adjacent mesenteric root. There is kinking and knuckling of the bowel.

The incidence of malignant growth varies with the site of origin. Treatment consists of resection of the involved segment of the intestine and mesenteric root. These tumors progress slowly.—*Wm. Sinclair, M. D., Ohio State Medical Journal, January, 44: 61-63, 1948.*

TAJ:CBH

NEUROLOGIC DISTURBANCES WITH FOLIC ACID THERAPY

By Philip F. Wagley, M.D., Boston

Condensed from the New England Journal of Medicine

THERE are numerous reports in the literature of the past two years on the excellent results obtained with folic acid in the treatment of pernicious anemia, sprue and nutritional macrocytic anemias. The observations presented below suggest some limitations of the therapeutic value of folic acid and indicate that its use, in the present state of knowledge, for the treatment of pernicious anemia entails a definite risk.

MATERIALS AND OBSERVATIONS. Fourteen cases of macrocytic anemia, 10 of pernicious anemia, 1 of tropical sprue, 2 of nontropical sprue, and 1 of macrocytic anemia associated with total gastrectomy were studied.

Five of the patients with classic signs and symptoms of pernicious anemia had initially shown excellent responses to the intramuscular use of refined liver extract. They had remained asymptomatic and without hematologic or neurologic relapse for several years on doses of 1 U.S.P. unit (injectable) a day given intramuscularly at intervals of

four to six weeks. To determine the effect of folic acid, liver-extract therapy was stopped. The patients were then started on folic acid in an average daily oral dose of approximately 15 mg.

In the 10 cases of pernicious anemia treated with folic acid the patients who had anemia at the beginning of treatment showed very good hematologic responses. There was no hematologic relapse. Five patients had been asymptomatic while on liver-extract therapy for several years. However, 8 patients, while taking folic acid, showed neurologic disturbances of varying severity within periods ranging from 8 days to 12 months. Two patients had difficulty with voiding of urine, 1 showing by cystometric study alterations suggesting a sensory lesion. Diminution in the vibratory sense and numbness and tingling in the hands and feet were the most frequent developments. One patient showed signs suggesting extensive damage to the reticulospinal tracts. Two patients, while still asymptomatic, gave evi-

dence of progressive diminution of the vibratory sense in the lower extremity. The onset of signs and symptoms in 2 cases was abrupt and severe. Usually, the neurologic changes appeared clinically to be most marked in the sensory as contrasted to the motor modality. Three patients had either progression or return of soreness and burning of the tongue. In 1 case this was associated with gross changes consisting of papillary injection, atrophy and petechial hemorrhages. This patient responded within a week to liver extract given intramuscularly; at the end of that time there was no soreness and no glossal petechiae.

One patient with tropical sprue showed excellent clinical and hematologic response to folic acid therapy, but of 2 patients with nontropical sprue only 1 had a remission. The other, who had not previously responded to liver extract, showed no change in the blood either on parenteral or oral dosage and no marked change clinically. No neurologic disturbances developed in the cases of sprue during folic acid therapy.

A patient with total gastrectomy of seven years' dura-

tion, associated with macrocytic anemia, severe neurologic changes and weight loss, did not show a marked reticulocytosis or clinical improvement over a sixteen-day period of intensive folic acid therapy parenterally. There was a definite though small rise in the red-cell count and hemoglobin level. Although subsequent liver extract did not cause any rapid changes there was gradual and progressive improvement over a period of several months both hematologically and neurologically.

The high incidence of pathologic neurologic signs and symptoms developing among patients with pernicious anemia who previously had been adequately controlled with liver extract indicates the inadequacy of folic acid therapy for this aspect of the disease. That these disturbances did not follow doses of folic acid that were simply too small is indicated by other observations. Spies et al. have stated that increasing dosages to amounts of 500 mg. a day have not ameliorated the progression of neurologic lesions in some cases. The abruptness and severity of neurologic relapse in an occasional case suggest the possibility of an

actual deleterious effect of folic acid. In a series of 21 cases of pernicious anemia treated by Spies et al. with doses of folic acid varying from 70 to 105 mg. a week, paresthesias and unsteady gait developed in 4. The dosage was then increased to 50 and even 500 mg. a day for ten to forty days without subjective or objective neurologic improvement.

The high incidence of glossitis during the treatment of patients with pernicious anemia is another symbol of

the inadequacy of folic acid in their therapy. One patient's main complaint was severe glossal pain. Papillary petechiae developed during treatment. Although folic acid did not improve the condition, liver extract caused marked improvement in the discomfort and the petechiae disappeared within a week.

The observations presented indicate that the use of folic acid in the present state of knowledge entails a definite risk of injury to the nervous system in pernicious anemia.

SBH:KOE



CAPILLARY FRAGILITY AND DIABETIC RETINITIS

The relationship of increased capillary fragility to diabetic retinitis was studied by Rodriguez and Root in 156 diabetic patients. Capillary fragility was found to be increased in 40 per cent of unselected cases of diabetes and in practically all cases of diabetic retinitis. Administration of large doses of rutin, as high as 300 to 400 mg. daily, was followed by a return of capillary fragility to normal but none of the patients showed improvement in the retinitis. Increased capillary fragility is regarded as an early manifestation of the generalized arterial degenerative disease of diabetes.—*Rafael Rodriguez, M.D. and Howard F. Root, M.D., New England Journal of Medicine, March 18, 238: 391, 1948.*

LBL:LBL

THE TREATMENT OF ACUTE PERFORATED PEPTIC ULCER

By D. L. C. Bingham, F.R.C.S. (Edin.), Kingston, Ontario

Condensed from the Canadian Medical Association Journal

PERFORATION is the most serious complication of peptic ulcer. It occurs in from 10-15% of cases and has a mortality rate of 25%. Immediate mortality depends on (1) The volume, nature, and bacterial flora of the stomach contents at the moment of perforation (2) The size and rate of peritoneal contamination (3) The potency of the natural defense mechanisms within the peritoneal cavity to absorb and sterilize the contamination fluid (4) The interval between perforation and treatment.

It is estimated that young, healthy and robust persons will in all likelihood combat peritoneal infection more successfully than older persons.

Operation may be avoided without danger and with benefit to the patient if the stomach is relatively empty at the time of perforation or if gastric aspiration can be done promptly. To date we have treated 62 cases conservatively in this manner with a gross mortality of 11.3%, and a mortality of 4.84% ascribable to a failure of conservatism.

CONSERVATIVE TREATMENT.

The indications are cases in which the perforation is of less than 8 hours' duration and where it takes place more than an hour after the last meal, where the perforated ulcer is duodenal rather than gastric and where it is believed to be very small. Likewise, it is indicated in late cases in which the perforation is of more than 3 days' duration. If these indications are fulfilled, the patient receives morphine grs. $\frac{1}{4}$ intravenously and sucks a nuporal cough drop.

His stomach is emptied by a large stomach tube which is attached to a suction apparatus. Continuous aspiration with a Wangenstein apparatus is carried out. Intensive penicillin and sulfadiazine therapy is started. During the first 24 hours of this regimen 1 oz. of water is given by mouth every hour. Water and electrolyte balances are maintained by venoclysis.

The same treatment is continued the second day, but on the third day 2 ozs. of citrated milk and water is given hour-

ly. On the fourth day 3 ozs. of citrated milk and water is given and a Levine tube is clamped for 30 minutes after each feed. On the fifth day cream is added and the Levine tube is removed. As a rule, patients are allowed out of bed on this day and are able to leave the hospital in the third week of their illness.

When conservative management is contraindicated, simple suture of the perforation is the operative method of choice. Closure of the perforation followed by gastro-jejunostomy has been largely abandoned because experience has shown that there is a higher mortality rate by this procedure.

Partial gastric-duodenal resection must be restricted to clinics specializing in gastric surgery and it would be folly

to advocate its adoption by the average general surgeon.

Temporary gastrostomy or duodenostomy is necessary where it is technically impossible to suture the ulcer because of the size of the opening and friability of the stomach wall. In such circumstances a large rubber tube sutured to the stomach and introduced through the ulcer into the duodenum may serve as a temporary plug and tide the patient over the crisis.

More extended trial is needed to determine the value of conservative treatment of perforation. The method of gastric aspiration is sufficiently encouraging to warrant its adoption in sparsely populated districts and ships at sea when skilled surgical help is not immediately available.

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LKF:CBH



Men are wise in proportion, not to their experience, but to their capacity for experience.
—G. B. Shaw.

CARDIOVASCULAR SYPHILIS

By Ogden Woodruff, M.D., New York, N. Y.

Condensed from the American Journal of Medicine

IN planning the treatment of a patient with syphilitic aortitis, we must remember that we have no way of detecting coronary ostial involvement or the degree of stenosis present in the asymptomatic stage of syphilitic aortitis. Therapeutic reactions in syphilitic involvement of the coronary orifices can produce alarming and even fatal results. Consequently, antisyphilitic treatment of patients with aortitis should be started with caution. In view of the fact that we have seen three cases of serious reaction attributed to bismuth therapy in the past decade, it is possible that starting treatment with as little as 0.1 Gm. of oil-soluble bismuth may in rare instances be dangerous. This is especially true of patients who have already had symptoms of serious heart disease when greater caution in starting treatment must always be observed. This note of warning is sounded because a great deal of oil-soluble bismuth is sold and presumably used by the general practitioner. Incidentally, even doses of 100

mg. do not maintain effective levels given once every five to seven days. In starting treatment with bismuth the physician should remember that water-soluble preparations are absorbed and excreted rapidly and injections of sodium bismuth tartrate or iodobismutol must be given at least three times a week to maintain a urinary excretion around 2 to 4 mg. of bismuth daily. Oil-soluble preparations such as bismocymol and biliposol should be given twice a week, while the insoluble preparations of bismuth salicylate in oil can be given once a week. One cc. of 10 per cent emulsion of bismuth subsalicylate in oil (125 mg. metallic bismuth) will usually give a daily excretion of from 3 to 4 mg. of bismuth. The absorption of the insoluble preparations is slower than of soluble bismuth, and in starting the treatment of cardiovascular syphilis this is an advantage. It is advisable to start treatment of all patients with uncomplicated syphilitic aortitis with bismuth rather than the more actively spirocheticidal

drugs, such as arsenicals or penicillin.

As yet we have too little knowledge regarding the treatment of cardiovascular syphilis with penicillin to discuss it intelligently. Such treatment at present is experimental and must remain so for some time. In the last few years a fair number of patients considered clinically to have cardiovascular syphilis have been given, in medical wards, intensive penicillin therapy for acute infectious processes, especially pneumonia, without manifesting any obvious therapeutic reactions.

In late years most cardiologists have relied more and more on bismuth exclusively for the control of syphilitic aortitis. The syphilologists, however, seem to favor the use of arsenicals as well, and it seems to the author that the weight of evidence indicates that it is doubtful whether syphilitic aortitis will be permanently arrested unless arsenical therapy is included in any course of thorough and prolonged treatment. Furthermore, to be effective, arsenical drugs must be given in reasonably adequate dosage. It is wise to start arsenicals cautiously with small doses but,

if tolerated well, the dosage should be increased to effective therapeutic levels such as 0.04 Gm. or even 0.06 Gm. of arsenoxide. The arsenical of choice is arsenoxide (mapharsen, chlorarsen or similar preparations) because experience has proved that this is less toxic than any of the other arsenic derivatives now available.

The course of treatment in uncomplicated aortitis should cover at least two years. After any such course of treatment, the patient should be examined every six months with a view to determining either the recurrence of syphilitic activity or any evidence which would suggest further progress in cardiac or vascular damage. Treatment should be initiated with a course of bismuth therapy extending over a period of at least eight or ten weeks. If bismuth salicylate in oil is used, injections can be given every three or four days if the initial doses are less than 0.1 Gm. If well tolerated, however, the dosage should be increased to 0.2 Gm. each week. Following this, arsenoxide should be used, starting with 0.03 Gm. and increasing the dosage to 0.04 Gm. or 0.06 Gm. each week. If

lower doses are used, treatment should be given oftener than once a week. Alternate courses of bismuth and arsenoxide over a two-year period are advisable. Each course of bismuth and arsenoxide should extend for a period of from eight to ten weeks.

In the symptomatic phase the same procedure can be carried out, save greater caution needs to be observed, especially when treatment is first started. If cardiac failure is present, compensation should be restored without any antisyphilitic therapy during this period, except the use of iodides. When the patient is no longer in heart failure, bismuth should be started in small doses and the first course should be extended for at least ten to twelve weeks. Arsenical drugs should be started with great caution and the patient should be questioned at each visit as to tolerance. Any reactions should be regarded as dangerous and arsenical drugs stopped if they occur. In patients with symptomatic syphilitic heart disease it is always more important to treat the heart disease than the syphilis. No antisy-

philitic treatment will repair damaged heart valves or make the coronary ostia more patent once scar tissue has already formed. Cardiac failure is handled as cardiac failure is under all conditions.

Regarding the treatment of aneurysm, one should comment on the improvement in technic which makes highly desirable wiring with electrothermic coagulation of sacculated aneurysms whenever their situation makes them available for surgical approach. Combined with antisyphilitic therapy, brilliant therapeutic results have been achieved. We should realize that competence in this branch of surgery is rare. In the symptomatic stage of the disease when cardiac failure is present, especially in patients in the lower income group who cannot protect themselves satisfactorily from severe stress and strain except when in the hospital, the fight is a losing one. Gradually the free intervals between hospitalization become shorter and the period of hospitalization longer, until death supervenes from progressive cardiac failure.

THE TREATMENT OF *E. COLI* URINARY INFECTIONS WITH SULFATHALIDINE (PHTHALYLSULFATHIAZOLE)

By H. S. Everett, G. A. Voseberg, and J. M. Davis, Baltimore

Condensed from the Journal of Urology

SULFATHALIDINE has been found effective in the treatment of urinary infections due to *E. coli*. Administration of the drug in appropriate dosage, approximately 0.1 Gm. per kg. of body weight daily, usually renders the urine sterile by the end of 1 week. Continuation of the drug for 2 additional weeks, we believe, furnishes greater protection against recurrence of infection. The drug has proved effective against infections which had proved resistant to other sulfonamides. It is not effective bacteriologically against organisms other than *E. coli*. It is tolerated well by patients who have reacted badly to other sulfonamides, and by patients with anemia, leucopenia, or low renal function who ordinarily tolerate other sulfonamides poorly.

Fifty cases with various types of urologic disease and with urine infected by *E. coli*. have been found suitable for reporting. Urines with *Aerobacter aerogenes* and other types of organisms commonly found in the urinary tract

were never rendered sterile by the drug, and therefore patients with such infections have not been included, although some of them, especially those with *Aerobacter aerogenes* infection, were often greatly improved symptomatically. All but one of the patients experienced great symptomatic benefit, and this was true of all of the 7 in whom the urines could not be rendered sterile. The urine of the patient who received no symptomatic relief became sterile very promptly, and it was finally concluded that this patient was suffering from relatively mild interstitial cystitis upon which an *E. coli* infection had been superimposed.

Of the 7 patients in whom the urine could not be rendered sterile, 4 were suffering from obstructive lesions that could not be entirely eliminated, one had cystitis and ureteritis cystica, and one a small calculus in the right pelvis considered too small to warrant operative removal. In the seventh patient no ascertain-

able cause for the inability to render the urine sterile could be found. Twenty-four of the patients have been followed for periods varying from 6 to 30 months since the completion of treatment, and 21 others for shorter periods, 2 to 6 months. Seven patients in whom late recurrences of infection occurred were given a second course of the drug with successful eradication of the current infection in all but one.

We can only speculate as to the mode of action of these drugs in accomplishing the results set forth. Large doses and high urine concentrations of the sulfonamide drugs are not necessary in the treatment of urinary infections. It might be argued from this that even the small amount of free sulfathiazole present in the blood and urine as a result of administration of sulfasuxidine or sulfathalidine may be the active agent in rendering the urine sterile. This argument seems untenable, however, in view of the very small amounts of sulfathiazole found in the blood and urine, and in view of the fact that several patients were successfully treated with these drugs, whose infections had failed to

respond to relatively large doses of sulfathiazole.

A more likely possibility it would seem is that the drugs themselves, sulfasuxidine and sulfathalidine, even in the low concentration in which they appear in the blood and urine may exert a stronger bacteriostatic and bacteriocidal effect upon *E. coli.* than is exerted by sulfathiazole and sulfadiazine even in considerably greater concentration.

The only other alternative would seem to be that the tissues of the urinary tract are given an opportunity to rid themselves of the existing infection because the constant source of infection in the bowel is temporarily eliminated.

The reason for persistence of cure, in at least some of those patients who had previously exhibited chronicity or rapid recurrence of infection in spite of other forms of sulfonamide therapy, seems even more difficult to explain. Three possible explanations may be suggested:

First, elimination of the source of infection from the bowel for a period of 3 weeks may give the tissues of the urinary tract time to recover sufficient natural resistance to

infection to protect them against recurrence.

Second, the beneficial effect exerted by the drug upon the intestinal tract may decrease the avenues for escape of organisms into the blood stream or lymphatic channels through which they may have been reaching the urinary tract.

Third, there may be certain strains of *E. coli.* with a selective affinity for the urinary tract which are completely and permanently eradicated as a result of administration of the drugs.

It seems probable that either the first or second of these mechanisms, or perhaps both of them, may be the explanation for the persistence of cure. It is for this reason that it has been considered advisable to continue the drug for at least 2 and preferably 3 weeks. In the majority of those patients cured, the cultures became sterile in less than a week after administration of the drug was begun, so that such an extended course was not necessary to effect an immediate cure.

BH:RDD



HALF MILLION GIVEN FOR HEART DISEASE RESEARCH

MORE than half a million dollars for research in heart disease during 1948 will be given by U. S. and Canadian life insurance companies, through the Life Insurance Medical Research Fund. Hospitals, medical colleges, clinics and individual physicians are receiving grants.—*Science News Letter*, April 10, 53: 232, 1948.

THE TREATMENT OF VAGINITIS WITH PENICILLIN VAGINAL SUPPOSITORIES

By Stuart Abel, M.D., and C. J. Farmer, M.A.

Condensed from the Quarterly Bulletin of the Northwestern University School of Medicine

DURING the past few months we have had an opportunity of studying the effects of penicillin vaginal suppositories in 20 patients at the Northwestern University Clinics. Treatment consisted of insertion of cocoa-butter vaginal suppositories, each containing 100,000 U. of penicillin calcium. The suppositories were inserted singly over a variable period of time. No other treatment was employed, and the patient was specifically advised to take no douches. Vaginal smears and cultures were made preliminarily in all cases. Blood penicillin levels were determined as a concomitant study over a period of 4 hours subsequent to the insertion of a suppository, while the patient remained in the clinic.

RESULTS. Of the 20 cases treated, all had acute vaginitis. In 7, trichomonas vaginalis organisms were demonstrated, and in the remaining 13 the infection was found to be non-specific. A variety of bacteria were identified in the cultures made. Of the 13 cases

of non-specific vaginitis, all reported complete or nearly complete improvement. The average dose used and the duration of treatment averaged 960,000 U. of penicillin and 11 days respectively in this group. Twelve of the 13 patients remained well, while one had a slight recurrence after 3 months. In this last case, a second course of 7 suppositories effected prompt improvement, and the patient has remained well.

Of the 7 patients in whom trichomonas vaginalis organisms were demonstrated, only 2 reported definite improvement. Four reported little or no improvement. The average dose of penicillin used and the duration of treatment were 1,270,000 U. and 19 days respectively in this group.

DISCUSSION. It is probable that penicillin has no direct effect on trichomonas vaginalis organisms, but through its action on the associated bacterial infection usually present, it may produce a certain degree of improvement in cases of trichomonas vaginalis

vaginitis. Certainly it is not a specific therapy in such cases.

That penicillin vaginal suppositories have any value in the treatment of chronic endocervicitis is doubtful. The real advantage of these suppositories lies in the treatment of acute vaginal infections.

The blood penicillin levels obtained after insertion of the suppositories were variable, but indicated that the maximum concentration was achieved after about one hour. The real value of these suppositories, however, lies in the local concentration of penicillin in the vagina, and the production of high blood levels

is only of secondary importance.

Because penicillin vaginal suppositories have proved to be of definite help in the treatment of bacterial infections of the vagina, it seems logical to suppose that they might be of value in pre- and postoperative management of patients upon whom extensive vaginal surgery is performed. Vaginitis and abscesses in the vaginal vault might be minimized by the insertion of penicillin suppositories prior to and immediately after such major procedures as combined vaginal hysterectomy and plastic operation.

CBL:HBJ



STARVE MALARIA GERMS

Drugs to stop malaria by starving the germs may come as a result of research by Drs. Ralph W. McKee and Quentin M. Geiman of Harvard Medical School in Boston.

The germ-starvation treatment, if it can be developed to a practical point, will help stop starvation and undernutrition in humans the world over, even in regions where there is no malaria. Much more food could be grown on a world basis if there were not so many hundreds of millions of malaria-weakened people in agricultural regions of the world.

The possibility of the germ-starvation conquest of malaria comes from the discovery that malaria germs cannot grow and reproduce without methionine.—*Science News Letter*, April 10, 53: 231, 1948.

THE CYTOLOGIC METHOD IN THE DIAGNOSIS OF CANCER

By Maurice Fremont-Smith, M.D., Ruth M. Graham, B.S., and Joe V. Meigs, M.D.

Condensed from the New England Journal of Medicine

DURING the past five years in the Vincent Memorial Laboratory, 3710 cases have been studied by vaginal smear with a total diagnostic error of 2.8%. Of 3327 cases without cancer, a mistaken positive diagnosis was made in 55. This represents an error of 1.6%.

The new cytologic method supplements the biopsy and in some cases gives information that the biopsy cannot give. We consider this procedure an essential complement to biopsy in the diagnosis of cancer.

Diagnosis depends upon the fact that malignant tumors upon any free surface desquamate tumor cells into the surrounding media.

Papanicolaou in 1948 recognized cancer cells in the vaginal secretion of women with cancer of the uterus. His original report has been confirmed.

In a controlled study Hertig obtained positive smears in 39 of 40 cases of carcinoma of the cervix and in 15 of 18 cases of cancer of the fundus. In the diagnosis of very early

carcinoma of the cervix the vaginal smear is not infrequently more accurate than the biopsy. Seventeen cases of preinvasive carcinoma of the cervix, in which vaginal smears were positive in 15, have been reported.

Cancer of the lung has been investigated by Seed and Graham in our laboratory. They examined a single sputum from each of 250 cases. A correct diagnosis for or against cancer was made in 73%.

Cancer of the urinary tract has had approximately 50% accuracy in our diagnostic procedure. Fifty cases of gastric carcinoma have been examined in our hospital; 24 of these patients had cancer of the stomach. Cancer cells were recognized in the gastric secretion of 15.

The cytology of various body fluids has been studied as a means of cancer diagnosis. The value of the method for the diagnosis of uterine cancer has been established. In the detection of early cervical neoplasms, it is apparently more accurate than routine

biopsy. Studies are in progress to determine the accuracy of cytologic examination in the diagnosis of cancer of the stomach, lung, and urinary

tract. In the early diagnosis of gastric carcinoma, the new method may prove to be of great value.

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ESKIMOS AND INDIANS HAVE SIMILAR BLOOD PATTERNS

ESKIMOS and Indians are closely related; in fact, Eskimos once were Indians. So declared Dr. Victor E. Levine of Creighton University in an address before the meeting of the American Association of Physical Anthropologists in Washington.

Dr. Levine's conclusions are based mainly on the close similarity between the blood group patterns of the two peoples. Eskimos and Indians alike have the Rh factor in practically 100% of their numbers, and again are very nearly lacking in the N blood type. Both peoples have some blood-type resemblances to Chinese and Japanese, but differ from Asiatics in the same way.

Ideas on blood-relationship between Eskimos and Indians are supported also by studies of their present culture traits and by the archaeology of their ancient dwelling sites.

The general opinion, Dr. Levine stated, is that Eskimos originated as inland Indians, and later moved to their present home area along the Arctic ocean.—*Science News Letter*, April 10, 53: 232, 1948.

ACUTE PANCREATITIS

By J. R. Paxton, M.D., and J. H. Payne, M.D., Los Angeles

Condensed from Surgery, Gynecology and Obstetrics

THIS report represents a study of 307 patients in whom the diagnosis of acute pancreatitis was established, who were admitted to the Los Angeles County General Hospital between January 1933 and January 1946. One hundred fifty-nine cases were diagnosed by definite elevation of the blood amylase or urinary diastase; 103 were diagnosed at surgery; and 45 were either diagnosed or the diagnosis substantiated at the autopsy table. Our review includes a series of cases approximately 4 times larger than any group previously reported.

CLINICAL PICTURE. Acute pancreatitis may affect all age groups. The youngest in this series was an 11-year-old girl; the oldest, an 86-year-old man. The average male was 41, the average female was 49. The majority of the patients were in the third decade of life. There were 169 females and 138 males in our study.

There was a higher incidence of acute pancreatitis during the hot summer months. The initial pain be-

gan immediately after the ingestion of a heavy meal in 76 instances, a positive point in the history which can be of real diagnostic value.

About 60 per cent of these patients had had previous similar—but less severe—attacks. These episodes were generally mild and of short duration, subsiding within 24 to 48 hours; they represent a mild form of the disease and are commonly referred to as edematous pancreatitis or acute interstitial pancreatitis. It is not uncommon for a fatal attack to be preceded by several mild attacks.

Fifty-five of our patients were admitted in an intoxicated condition or were recuperating from a recent alcoholic bout.

SYMPTOMS. The 3 predominating symptoms in the acute phase of the disease are pain, nausea, and vomiting.

Of the 307 patients, 290 had abdominal pain. The pain was epigastric in 114 cases, epigastric radiating to the back in 122, and epigastric in origin becoming generalized in 38. Flank pain and tenderness are

of definite diagnostic significance.

In this group, 291 complained of nausea, and 258 had been vomiting. Reflex vomiting appears early and is generally persistent. Later in the course of the disease, the vomiting is variable, dependent upon the amount of ileus present, or the degree of duodenal obstruction from the enlarging pancreas.

From a clinical standpoint, the disease usually falls into one of five groups. The first is the classic picture: an elderly, obese, florid individual who has eaten a large meal preceded by several highballs. A few hours later, he is seized with excruciating upper-abdominal pain followed immediately by nausea and profuse vomiting. Generally he is in profound shock with cyanotic, mottled skin and diffuse abdominal rigidity and tenderness. Death ensues within 24 to 36 hours.

Group 2 simulates acute cholecystitis. Group 3 imitates mechanical small-intestinal obstruction; there is no apparent etiology, such as hernia or abdominal scar, for the obstruction. Group 4 represents acute alcoholism with acute gastritis. Included in this category are those pa-

tients who are thought to have a perforated peptic ulcer. Group 5 comprises those patients who, on admission, have a mass either in the epigastrium or in the left upper quadrant. Approximately 3 to 4 weeks prior to admission they had acute pancreatitis. A pancreatic abscess, a pseudocyst, or inflammatory exudate remained as a tender mass.

ASSOCIATED SYMPTOMS.

Twenty-four of our patients had massive gastro-intestinal hemorrhage, 14 times as a bloody diarrhea and 10 times as hematemesis. Diarrhea was present in 22 of our cases. Constipation is more commonly seen, however. Sixty of the patients had clinical hypertension, though their ages were not those at which hypertension would be expected. This observation varies from the widespread belief that profound shock is generally present. In our series, only 11.7 per cent were in severe shock, whereas 237 cases showed no clinical evidence of shock at all. We believe the degree of shock depends upon the pathology present.

LABORATORY FINDINGS. Acute pancreatitis may be suggested by the symptoms and findings, but we must depend on

the laboratory to establish the clinical diagnosis.

A definite elevation in the blood amylase usually occurs within the first 24 hours. It remains elevated from 24 to 72 hours, depending on the severity of the disease, and usually returns to normal before the clinical subsidence of the disease. The urinary diastase rises 12 to 24 hours later than the elevation of the blood amylase, and generally remains elevated 24 hours or more longer than the elevated amylase. It must also be remembered that the blood and urinary diastase levels may be normal in cases that have widespread destruction of the pancreas.

The blood calcium may be lowered because of the body's use of the ionizable calcium. This lowering may be severe enough to produce clinical tetany. Some patients with acute pancreatitis will show glycosuria and hyperglycemia. We have seen many cases of diabetes mellitus resulting from acute pancreatitis.

ROENTGENOGRAM. In the later stage of the disease, the X-ray picture of the abdomen frequently shows a segmental type of ileus which may involve the stomach, small in-

testine, or colon. The transverse colon exhibits this selective segmental ileus more often than does the rest of the bowel. Eighty-two of our cases showed a segmental type of ileus by X-ray.

TREATMENT. We believe that the treatment of choice in uncomplicated acute pancreatitis is non-surgical.

The objective of the treatment is to place the pancreas at rest. Continuous gastro-intestinal suction is important, as by preventing the acid gastric secretions from entering the duodenum, hormonal stimulation of the pancreas is minimized. In addition, acute gastric dilatation is prevented and the ileus which develops is treated.

The fluid and caloric requirements are met by administering 3 to 4 liters of 5 per cent glucose solutions daily. Regular injections of morphine sulfate are used to relieve the severe pain and to place the gastro-intestinal tract at rest. Remarkable relief from pain is obtained by a procaine block of the paravertebral sympathetic ganglia (T4—T9). Atropine sulfate is given in large doses every 3 to 4 hours, to suppress the vagus mechanism.

One additional measure that may alter favorably the course of acute pancreatitis is the use of X-ray therapy. This is most effective when given early.

Patients with acute pancreatitis on the treatment outlined may show rapid clinical improvement. Other than a slight elevation in temperature, they have no symptoms or findings of acute pancreatitis. Diastase activity is within the normal range. If gastro-intestinal suction is discontinued and oral feeding started, an exacerbation of the disease results. It is our policy to continue the intensive conservative treatment until the temperature has been normal for a minimum of 48 hours. The febrile response is an important guide in determining

when treatment can safely be discontinued.

The mortality in those patients with acute pancreatitis who are operated upon—irrespective of the procedure used—is definitely greater than the mortality in those treated non-surgically. Of the 307 patients in our study, 103 were operated upon, with 46 deaths, a mortality of 44.7 per cent. In the group that were not operated upon, there were 204 patients with 56 deaths, a mortality of 27.5 per cent. Of these 56 deaths, however, 16 patients were admitted *in extremis*. If this moribund group is deducted from the 204 patients treated non-surgically, 188 cases remain with 40 deaths, a 21.3 per cent mortality.

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That so few now dare to be eccentric marks
the chief danger of the time —*John Stuart Mill*.

END RESULTS OF THORACOLUMBAR SYMPATHECTOMY FOR ADVANCED ESSENTIAL HYPERTENSION

By J. W. Hington, M.D., New York

Condensed from the Bulletin of the New York Academy of Medicine

WE HAVE studied a group of 375 patients upon whom thoracolumbar sympathectomy was performed for the relief of hypertension. These cases have been followed for a period of 6 months to 5 years. We have had 38 fatalities within six months of the operation. In an attempt to lower this mortality rate we studied those fatal cases and the 337 who survived, and arrived at a set of rules which would reduce the mortality rate to 2.5 per cent. This figure is low in view of the fact that each patient undergoes two major operative procedures and many are recognized as poor risks.

We grade the cerebral, cardiac and renal status of each patient. In order to do this satisfactorily we require, in addition to a careful history and physical examination, the following studies: examination of the ocular fundus, electrocardiography, a 6-foot heart plate, a urine concentration test, urea clearance, blood-urea nitrogen, non-protein nitrogen and creatinine

determinations, and urinalysis. Intravenous urography was applied routinely in the work-up of the first 150 patients, until one death and 2 severe reactions caused us to abandon it unless there was a significant indication for its use.

We feel that death occurring within six months of operation indicates an unwise selection of patients for thoracolumbar sympathectomy. The only exception to this rule is the case in which papilledema has produced total blindness, and operation is performed to restore vision.

INDICATIONS FOR OPERATION. No changes in the eyegrounds *per se*, with the exception of severe arteriosclerosis in conjunction with evidence of severe arteriosclerosis elsewhere, are to be thought of as contraindicating operation. Failing vision is in most cases an urgent criterion for operation.

Aside from a persistent hemiplegia of less than 6 months' duration, the most dependable evidence of cere-

bral damage, and therefore a contraindication to operation, is mental confusion, however slight, as shown by the usual signs of organic brain defects, particularly recent loss of memory. Such defects were most frequently seen in the presence of other signs of generalized arteriosclerosis.

In evaluating cardiac status, the most important consideration is the history of functional cardiac capacity. Cardiac failure is not in itself a contraindication, but when it fails completely to respond to the usual therapeutic procedures it is an absolute contraindication. The electrocardiogram has been of value most frequently in verifying the diagnosis of recent myocardial infarctions. In such instances we defer operation for 8 weeks or longer, depending on the severity and extent of the infarction. Evidence of marked left-ventricular enlargement has been seen frequently, and, other factors being equal, is an indication for operation.

Renal decompensation, as reflected in values for blood-urea nitrogen over 18-20 mg. per cent, and NPN over 50 mg. per cent, rules out the advisability of operation, whatever the underlying renal

pathology. Of the fatalities in our study, almost half the post-operative deaths fell into this category.

The response of the blood pressure to deep barbiturate sedation or the autonomic blockade, as by tetraethylammonium chloride, is a useful device for testing the capacity for relaxation of the arteriolar bed. The sodium amytal test is less indicative.

OPERATIVE PROCEDURE. We place our patients in the exact lateral position with the lower leg flexed and the upper leg extended. The table is broken under the lower costal region. The entire tenth rib is resected subperiosteally. The parietal pleura is then reflected from the posterolateral chest wall, exposing the diaphragm which is completely divided on the operative side. The greater splanchnic nerve is divided at its junction with the celiac ganglion. The chain is carefully dissected from each intercostal artery and vein. The communicating rami are divided several millimeters from each ganglion and the chain is divided just below the third lumbar ganglion. The twelfth ganglion is usually located just above or in the substance of the dia-

phragm. The thoracic chain is pursued cephalad until the third ganglion is mobilized, and division is carried out above it. As we now do it, the operative procedure includes the third thoracic ganglion through the third lumbar ganglion with all the splanchnic nerves. Though mortality is higher with a more radical operation, end-results are better.

PRECAUTIONARY MEASURES. There are two basic problems to be handled during the operative and early postoperative periods: first, the maintenance of an adequate blood pressure, and second, the management of the thoracotomy during and after operation.

The maintenance of a relatively stable pressure has been achieved best by the use of 2 cc. of a 1% solution of neosynephrine in one liter of 5 per cent glucose in distilled water administered intravenously during the operation; and post-operatively, by using the same fluid with 1 cc. of neosynephrine per liter of solution until the systolic blood pressure has become stabilized at 90 or 100 mm. of mercury or higher. This may take as long as 48 hours. A 500 cc.

blood transfusion is administered routinely immediately after each stage.

The second major problem is to secure hemostasis and to deal with the open thorax during the operation and to prevent serious hemothorax, pneumothorax, atelectasis, and pneumonia post-operatively. This extensive sympathectomy should be carried out only when an anesthetist thoroughly familiar with open chest operative procedures is conducting the anesthesia. Hemostasis is not a simple matter; one of the frequent complications has been development of fluid in the chest post-operatively. In addition to the clamp and ligature, there are at one's disposal temporary pressure on the venous bleeder against the vertebral column, silver clips, oxycel and other hemostatic absorbable agents, and bone wax. The most serious difficulty with hemorrhage is presented by an accidental tear of an intercostal artery high in the chest cavity, such as the third, fourth or fifth. When hemostasis has been secured following the removal of the sympathetic chain and suture of the diaphragm, the chest wall is closed around a large

rubber catheter placed into the pleural space. Air is completely aspirated, the catheter removed, and the skin closed without drainage.

During the entire postoperative period, but particularly during the first 48 hours, careful repeated bedside examination of the chest must be made.

SUBJECTIVE RESULTS. We have been impressed by the subjective improvement and by the disappearance of severe and often disabling symptoms, irrespective of the effect of surgical treatment on the blood pressure. Patients frequently comment on the relief from pounding headaches and

a sense of "relief from tension."

SUMMARY. In the period from February, 1942, to November, 1947, 455 patients have been operated upon for essential hypertension. Most of these patients were in the advanced stage of hypertensive disease. This group included 183 males and 272 females. The total deaths were 74, or a total mortality of 16 per cent.

We feel that thoracolumbar sympathectomy has a definite place in the treatment of hypertensive vascular disease, but that its role in advanced cases is chiefly palliative.



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Experience is of no ethical value. It is merely the name men give to their mistakes.—*Oscar Wilde.*

PROCAINE PENICILLIN G IN OIL. L. PLASMA CONCENTRATIONS: PRELIMINARY OBSERVATIONS ON ITS USE IN PNEUMONIA

By William P. Boger, M.D., Jacob E. Oritt, M.D., Harold L. Israel, M.D.,
and Harrison F. Flippin, M.D.

Condensed from the American Journal of the Medical Sciences

IT is the purpose of this paper to report preliminary observations on the use of procaine penicillin G suspended in oil.

Procaine and penicillin G are combined in equimolecular quantities to form a crystalline salt relatively insoluble in water. Procaine penicillin crystals were suspended in both cottonseed and sesame oils so that each cc. of material contained 300,000 units of penicillin and 125 mg. of procaine. Although both of these preparations were employed in this investigation, the latter proved to be superior by reason of greater stability and fluidity. Since the penicillin settles out of either suspension on standing vigorous shaking is required to restore the homogeneity of the preparation. Slight warming facilitates injection of the material through a No. 21 needle.

Nine ambulatory patients, free of manifest hepatic, cardiac, and renal disease, who were afebrile and partaking

freely of fluids and food, were chosen as control patients for this study. Each patient received 1 cc. (300,000 units) of procaine penicillin suspended in oil as an intramuscular injection into the left buttock. Massage of the injection site was avoided. Thereafter, at 1, 6, 12, 24, 30, 36, 48, 54, 60 and 72 hours respectively, blood specimens were drawn for penicillin assay.

Eleven consecutive patients admitted to the hospital with lobar pneumonia, as determined by history, physical examination, Roentgen ray examination and laboratory findings, were treated with 1 cc. (300,000 units) of procaine penicillin administered as a single intramuscular injection into the left buttock. No additional therapy in the form of sulfonamides or penicillin was given, until such therapy was indicated by an adverse clinical course.

The next 12 patients admitted with the diagnosis of pneumonia, were given a

single intramuscular injection of 2 cc. (600,000 units) of procaine penicillin into the left buttock without massage of the site. With the exception of one patient, who showed assayable quantities for 30 hours, the penicillin concentrations following injections of 300,000 U. of procaine penicillin fell below 0.039 unit per cc. of plasma some time between 12 and 24 hours after the injection. The plasma concentrations that resulted from the injection of 300,000 units of procaine penicillin suspended in oil into patients suffering from pneumonia were as follows: Penicillin was detectable for less than 16 hours, less than 19 hours, and slightly more than 21 hours in 3 patients. The remaining 7 patients showed penicillin concentrations above 0.039 unit per cc. for periods varying from 24 to 70 hours.

Temperature is one objective criterion by which to judge the response of pneumonia to treatment. All of these patients responded with a fall in temperature and commensurate clinical improvement and 8 patients went on to complete recovery without further treatment. Two patients required supple-

mentary penicillin therapy.

Of 12 patients, each of whom received a single intramuscular injection of 600,000 units of procaine penicillin, 8 patients responded satisfactorily without additional therapy. A single patient did not respond to treatment but the fever fell by lysis after secondary procaine penicillin treatment. Two patients responded but had return of fever which occasioned second injections of procaine penicillin and 1 patient frankly relapsed after 8 days but responded promptly to routine penicillin therapy, 37,500 units intramuscularly every 3 hours.

It should be observed that the presence of significant amounts of procaine in procaine penicillin, 125 mg. per 300,000 units of penicillin, suggests the possibility of either aggravating a previously existent sensitivity or establishing a procaine sensitivity. Conclusions on this point must await extensive clinical usage of the material.

In this preliminary investigation of the use of procaine penicillin suspended in oil in the treatment of pneumonia, no effort was made to establish a single injection of the material as the routine thera-

py of pneumonia, but rather to investigate the duration of activity of a single large dose of penicillin by measuring penicillin in the blood down to a level which is accepted as having therapeutic significance with regard to the organisms ordinarily associated with bacterial pneumonia, and also by determining the actual duration of antibacterial effect or suppressive effect upon an

acute infection amenable to penicillin therapy, bacterial pneumonia.

On the basis of these preliminary data, it appears that a single injection of 300,000 units of procaine penicillin will, in the average patient, give assayable plasma concentrations of penicillin, or a suppressive antibacterial action, for at least 24 hours.

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LATENT RHEUMATIC MYOCARDITIS

Active rheumatic heart disease in older age groups is frequently clinically unsuspected. The difficulty of clinical recognition of rheumatic activity in older patients can be attributed to several factors: in these age groups active carditis assumes a high percentage of atypical forms; active rheumatic myocarditis as a cause of cardiac failure may be obscured by the presence of complicating diseases, such as hypertension, arteriosclerosis and healed rheumatic valvular disease to which the cardiac decompensation may be reasonably attributed; and, in a certain number of cases, the disease may be entirely silent, rendering clinical recognition difficult if not impossible. The results indicate that, contrary to the general impression, cardiac decompensation in rheumatic heart disease, even in older persons, is frequently the result of activity of the disease.—*Joseph Rogers, M. D., and Stanley L. Robbins, M.D., Boston. The New England Journal of Medicine, December 4, 237: 829-837, 1947.*

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THE QUESTION OF PROTHROMBINOPENIC HEMORRHAGE FROM POST-TONSILLECTOMY USE OF CHEWING GUM CONTAINING ACETYLSALICYLIC ACID

By G. S. Livingston, M.D., Chicago, and E. R. Neary, M.D., Newark

Condensed from Archives of Otolaryngology

THE prothrombinopenic effect of acetylsalicylic acid and the salicylates and the protective action of vitamin K, administered with these drugs, have been demonstrated by a number of investigators. The clinical significance of these findings has presented an importunate problem for study, particularly with reference to whether in man salicylate-induced prothrombinopenia is of sufficient magnitude to cause hemorrhage. In this regard, Quick has stated that the blood prothrombin must be reduced below 20% of normal before there is danger of hemorrhage and that salicylates, even when given in massive doses, do not cause the prothrombin to fall to the hemorrhagic level.

The purpose of the present study was to determine whether the routine post-tonsillectomy use of a chewing gum containing acetylsalicylic acid induces prothrombinopenia, and, if so, whether secondary postoperative hem-

orrhage is etiologically related to the lowered blood prothrombin.

The tonsillectomized patients who served as subjects of study were children less than 13 years of age, all of whom were ward patients in whom tonsillectomy had been clearly indicated. Only the records of those who gave evidence of having been fully co-operative during the course of study, a total of 45 patients, were regarded as satisfactory for this report.

An estimation of blood prothrombin was made by Kato's method for every patient on the day prior to operation, on the afternoon following operation in the morning and one week after operation. Kato's technic is a micromethod in which small quantities of oxalated whole capillary blood are used instead of the larger amounts of venous plasma used in other methods, which require venipuncture. Obviously, Kato's method is especially practicable with young children. The average

normal prothrombin time measured by this method is 20 seconds with a deviation of ± 2 .

On the day following operation our patients received a supply of medicated chewing gum with specific directions calling for daily chewing of a total of 5 to 6 gum tablets until they returned for examination and final estimation of prothrombin on the seventh postoperative day. One group (29 patients) received chewing gum tablets containing approximately 0.23 Gm. ($3\frac{1}{2}$ grs.) of acetylsalicylic acid; a second group (16 patients) received gum tablets containing the same quantity of acetylsalicylic acid together with 0.5 mg. of menadione, as controls. This amount of menadione was believed to be more than ample for counteracting whatever prothrombinopenic effect the contained acetylsalicylic acid might induce, since Shapiro has estimated that approximately 1 mg. of menadione will counteract the prothrombin-lowering action of 1 Gm. of acetylsalicylic acid.

No specific variation of prothrombin time, which normally appears to vary widely, could be ascribed to either

acetylsalicylic acid or to acetylsalicylic acid and menadione administered in chewing gum.

In the group of 29 tonsillectomized patients treated with chewing gum containing acetylsalicylic acid there were 2 in whom secondary postoperative hemorrhage occurred. In the control group of 16 patients, treated with chewing gum containing acetylsalicylic acid and menadione, there was 1 who experienced late bleeding. In none of these 3 patients were the post-tonsillectomy hemorrhage related to a decrease of blood prothrombin, since the prothrombin time on the seventh postoperative day was easily within normal not only in the hemorrhagic patient of the control group but also in the 2 hemorrhagic patients of the group treated with acetylsalicylic acid chewing gum.

It is apparent that there was no indication that the routine post-tonsillectomy use of chewing gum containing acetylsalicylic acid may give rise to prothrombinopenic hemorrhage or that such use of this gum has any adverse effect on blood prothrombin.



COLITIS

By Z. T. Bercovitz, New York

Condensed from the Bulletin of the New York Academy of Medicine

COLITIS is defined as a term reserved for all those lesions of the colon in which there is inflammation. The presence of cells, especially polymorphonuclear leukocytes, round cells and macrophages is indicative of pathologic changes.

A specimen is obtained by first giving three saline enemas. Mucus or other material evacuated one hour after the last enema is examined. The differential diagnosis is classified as follows:

- I. Specific
 - Bacterial
 - Protozoan
 - Helminthic
 - Virus Infections
- II. Non-specific
 - Chronic Ulcerative Colitis
 - Diverticulitis
 - Ileitis
 - Nutritional Deficiencies
- III. Other conditions to be ruled out
 - Psychosomatic
 - Malignance of the gastro-intestinal tract
 - Gastric, gall bladder or pancreatic disease, and diseases of the genito-urinary tract

GENERAL MANAGEMENT. Not only specific therapy but

treatment of the patient as a whole is essential. Psychosomatic factors and the nutritional state of the patient should be evaluated. The physician must take time to understand his patient and to win his confidence.

A minimum of 2500 cc. of fluids in 24 hours is necessary, to which should be added 100 mg. of thiamine chloride, 100 mg. niacinamide, and 1000 mg. ascorbic acid. A full balanced diet, rich in proteins and vitamins is needed. It is not necessary that foods be pureed. Contraindications are highly spiced foods and members of the cabbage and onion families. 30 minims of hydrochloric acid is of great value after meals. Sedations with small doses of barbiturates such as syntrolal, belladonna, and bellergal seem to give relief.

BACILLARY DYSENTERY. The usual clinical picture is sudden onset of diarrhea with straining, tenesmus, blood, mucus and pus. The patient is toxic, feverish, and has 20 to 30 bowel movements a day.

Sigmoidoscopy reveals an inflamed, necrotic, and ragged ulceration in the transverse axis of the bowel. Culture yields organisms of the *Shigella* group.

In therapy, sulfaguanidine is used 3 or 4 Gm. every 3 hours with reduction to 1 Gm. every 4 hours for 4 or 5 days. Intravenous fluids as stated before are given. Diet should be high in proteins and vitamins. Plasma and sedatives are sometimes required.

AMEBIC DYSENTERY (COLITIS). This is caused by the *Endamoeba histolytica*. There is a typical ulceration with a normal mucosa surrounding, 4 to 8 bowel movements in 24 hours with no straining or tenesmus. The patient is moderately ill, and is not toxic, nor is there a fever. The bowel movements may or may not contain visible mucous and blood. Constipation is not an infrequent symptom.

Complications include perforation of the bowel, hepatitis with or without abscess, amoebic granuloma, appendicitis, typhilitis, abscess of the spleen, brain, or lung. Careful study is needed in these patients.

A course of emetine is given with a course of sulfa-

diazine for 7 days. This is followed by a course of diodoquin 200 tablets given in doses of 4 tablets 4 times daily.

CHRONIC ULCERATIVE COLITIS

The etiology is still obscure. Complete investigation involves repeated microscopic examination of exudates stained with Loeffler's methylene blue, plus sigmoidoscopy to rule out malignancy, and cultures followed by X-ray examination.

TREATMENT. (1) The patient should be treated as a whole. Psychological and emotional factors must be considered in these cases. (2) Physical rest and relaxation are needed; narcotics and habit forming drugs should be avoided.

Maintenance of proper nutrition is a major problem. The practice of giving bland diets to remove all roughage from the colon has not cured the inflammatory lesions of acute ulcerative colitis. Adequate amounts of proteins such as beefsteaks, roasts, boiled or broiled are excellent sources. Vegetables and fruits are also needed. In severe diarrhea, intravenous infusions of plasma with added vitamins and blood transfusions may be needed.

The use of specific drugs has been disappointing. Temporary beneficial effects would warrant the continued use of the sulfonamides provided the patient is carefully observed. Penicillin and streptomycin have given disappointing results.

SURGERY IN CHRONIC ULCERATIVE COLITIS. Usually by the time ileostomy is considered, permanent damage to the bowel has taken place and the pathological changes may be irreversible. It may be that for the benefit of the patient, ileostomy will have to be performed earlier so that active therapy can be instituted.

The complications are perforation with abscess, formation of stricture of the bowel in prolonged cases; carcinoma of the large bowel following chronic ulcerative colitis does occur also.

LKF:CBH

HELMINTHIC COLITIS AND LYMPHOGRANULOMA VENEREUM

Infection with helminths are diagnosed first by consideration of the geographical location of the patient and studies of the stool. Treatment is by means of the antimony compounds, preferably fuadin.

Lymphogranuloma venereum is a specific virus infection which invades the lower bowel. Diagnosis is usually confirmed by proctoscopy. The mucosa is granular with innumerable tiny nodules, giving the finger the feel as though it were passed into a "bag of beans". The Frei test is positive.

Therapy includes administration of the sulfonamides, especially sulfathiazole. If the stricture causes obstruction to the bowel, colostomy may have to be performed.



It is a grievous illness to preserve one's health by a regimen too strict.—*La Rochefoucauld.*

THERAPY DIRECTED AT THE SOMATIC COMPONENT OF CARDIAC PAIN

By Seymour H. Rinzler, M.D., and Janet Travell, M.D., New York, N. Y.

Condensed from the American Heart Journal

THE fact that visceral pain may be relieved by local anesthesia of the somatic tissues concerned in the reference of pain was demonstrated nearly twenty years ago, but the therapeutic import of these observations has become lost. The following study is concerned with the practical aspects of local block therapy for cardiac pain.

In thirty-one patients with chest pain due to coronary artery disease and who had trigger areas in the voluntary muscles an attempt was made to block the noxious impulses from these foci by local procaine infiltration or by ethyl chloride spray. A trigger area is an abnormal zone of hypersensitivity, stimulation of which by pressure or needling gives rise to a brief reference of pain. Trigger areas reside occasionally in the skin but we have found them most commonly located in the myofascial structures. The muscles which frequently develop trigger areas in association with coronary artery pain are the pectoralis major and

minor and the serratus anticus. The pain reference patterns are similar whether the trigger mechanism is activated by cardiac or somatic factors. The examination consists essentially of discovery of discrete areas of tenderness so acute that the patient senses when they are palpated. When a sensitive trigger area is stimulated by pressure, the patient usually describes a reference of pain clearly perceived at a distance.

Since the relief of pain by so-called "analgesic" injection is not dependent on the local anesthetic action of the drug, the concentration of procaine hydrochloride in physiologic solution has been reduced for infiltration from 0.25 to 0.5%. The total dose of procaine at the first treatment is limited to 100 mg. and gradually stepped up if necessary. In infiltrating trigger areas of muscles, it is not necessary to infiltrate the skin. The needle is kept in motion in order to reach as many muscle layers as possible. The depth of injection varies. In muscular

persons a two inch needle (23 gauge) may be required but for more superficially located trigger areas in the pectoralis major and serratus muscles, a one and one quarter inch needle (24 gauge) is used. For a given trigger area the amount of solution injected is usually about one to four cc. but less may suffice. For ethyl chloride spray, the standard glass container is used and the spray applied at an acute angle with a circular motion for about 5 to 15 seconds and continued until the spontaneous pain has disappeared.

The 31 patients with pain due to coronary insufficiency were classified into three groups:

GROUP I. Four patients who had constant chest pain initiated by acute myocardial infarction. All were afforded complete relief of pain either by procaine infiltration or ethyl chloride spray. Relief of pain was immediate and complete except in one instance which required four treatments before lasting complete relief was obtained.

GROUP II. Eighteen patients who had angina of effort with preceding myocardial infarction. Twelve of these patients whose anginal syndrome oc-

curred soon after the myocardial infarction had relief of pain after six treatments at weekly or biweekly intervals. In the remaining six patients whose angina had been gradual in onset and preceded the myocardial infarction, prolonged treatment effected only partial and temporary relief.

GROUP III. Nine patients who had angina of effort without acute myocardial infarction. In all of these patients the results were unsatisfactory.

Our observations indicate that the noxious stimuli from the heart, continuing after acute myocardial infarction, are of such a nature that the pain cycle initiated by this event can usually be blocked at the somatic component. One may assume that the initial injury to the heart leads to the rapid development of somatic trigger areas in the so-called "reference zone" of the visceral lesion. Soon after the activation of the trigger mechanism, the noxious impulses from the primary source in the heart cease spontaneously and the continuation of pain then depends on an autogenic cycle of nerve impulses maintained by the secondary sources in the somatic struc-

tures. The unsatisfactory response to local block therapy in the group of patients with angina of effort indicate that work-ischemia of the heart muscle provides conditions unlike those in postinfarction angina. It may be that fresh impulses initiated in the heart with each attack of pain are sufficient in intensity and duration to reactivate trigger areas. Alternatively, it is possible that the preponderance of the impulses travel directly to the sensorium, so that spatial

summation of cardiac and somatic impulses is not essential for the perception of pain. In either instance, local block would be expected to afford negligible or only temporary relief of anginal pain.

The clinical value of the procedure is emphasized. In addition it is possible that the procedure may help to reduce reflex coronary spasm by block of cardiosensory pathways and thus tend to lower the mortality associated with acute coronary obstruction.



ANTI-LEUKEMIA WEAPON

ARSENIC made radioactive in the atomic pile is now being tried in the treatment of leukemia and Hodgkin's disease, a group of University of Chicago and Argonne National Laboratory scientists reported at the meeting in Atlantic City of the American Association for Cancer Research.

The scientists are Drs. William Neal, Leon O. Jacobson, Austin M. Brues, Howard Ducoff, Robert Straube and Thomas Kelly.

"Very nice responses" have been obtained in some of the 12 patients treated so far. But, Dr. Jacobson cautioned, he does not know how long the improvement will last or even whether the present improvement is any better than the temporary responses obtained with other kinds of radiation treatment.—*Science News Letter*, March 20, 53: 188, 1948.

FURTHER OBSERVATIONS ON THE TREATMENT OF BLEEDING PEPTIC ULCER

By C. W. Holman, M.D., New York, N. Y.

Condensed from Surgery

THIS paper reports a comparison of the results of radical versus conservative therapy in cases of bleeding peptic ulcer seen at the New York Hospital during the period 1932—1946, inclusive. In these cases, only the therapy was changed. The patients were all ward patients, all had such severe bleeding that they had to be hospitalized, and their care was directed by supervised resident surgeons, all trained by the same standards.

During the earlier period, 1932 to 1939, inclusive, all patients admitted because of severe hemorrhage from ulcer (161 in number) were treated by bed rest, nothing by mouth, adequate sedation, and supportive parenteral fluids until it was evident that bleeding had stopped. Those who continued to bleed under this treatment or who were near exsanguination on admission also received repeated small blood transfusions. A few patients who continued to bleed after prolonged therapy (5 in number) were operated

upon as a last resort. During this period 21 patients died, a mortality of 13 per cent.

It was obvious that, although most patients recovered satisfactorily under this treatment, about 13% would die unless more active measures were taken to control the bleeding.

Critical analysis of our patients revealed a definitely poor prognosis for two groups: those who failed to improve within 24 to 48 hours after they had been placed on a strict medical regime, and those who suffered the first hemorrhage while they were under a strict medical regime for a heretofore uncomplicated ulcer. In general, the older the patient the higher the mortality.

In view of these findings, it was decided that thereafter any patient who fell into either of the two groups described, particularly if he were over 40 years of age, would be operated upon immediately if the condition in any way warranted the risk. An analysis of the clinical course of the pa-

tients who died revealed that in general there was a period when operation might have been done with a reasonable hope of success.

A survey of the period from 1940 to 1946, inclusive, when the newly instituted treatment was followed, showed a most gratifying fall in the mortality, to about 5%. During this period 206 patients were hospitalized because of bleeding, 11 of whom died. Of these, 19 were operated upon during active bleeding, with 4 deaths. Of the total, 84 patients were operated upon after recovery from bleeding, with a 3.6 per cent mortality. Ninety-six were discharged from the hospital without operation.

The success of this latter type of treatment depends upon (1) an early recognition of those patients who will not respond to conservative therapy, and (2) operation on these patients as soon as possible after the onset of bleeding, preferably within 48 hours. Once it has been decided to operate for control of active bleeding, any delay—with the hope that the patient will spontaneously stop bleeding—only increases the risk of surgery.

Even though these patients

are critically ill, gastric resection is tolerated surprisingly well if a large amount of blood is given before, during, and after operation. Certainly resection is the ideal procedure to insure both immediate control of bleeding and a satisfactory permanent result. Indirect methods, such as gastro-enterostomy and plastic procedures on the duodenum, have been found of little value.

In the postoperative period, special effort should be made to restore the hemoglobin to a normal level as quickly as possible. Since the diet is necessarily restricted, and since, in addition, many patients have been on a limited diet for long periods before the onset of bleeding, parenteral vitamins should also be given. Penicillin is given pre- and post-operatively.

We can also make a preliminary report on a five-year followup study on all patients hospitalized for bleeding. Of the 134 patients who were discharged from the hospital after recovery from the bleeding without operation, 5 died from recurrent hemorrhage, 66 had recurrence of the bleeding, 31 had sufficient pain to require continued medical therapy, and only 32 are free

from pain and bleeding. In contrast, of the 53 patients on whom a gastric resection was performed, none died, only 2 had recurrence of bleeding, 5 had pain, and 46 are asymptomatic. Of the 15 patients who had indirect operative procedures performed, 1 died from recurrent bleeding, 8 had recurrence of bleeding, one had pain and 5 are asymptomatic. We found similarly poor results in a group of 29 who were hospitalized because of bleeding, in whom an indirect procedure had been performed previously.

These findings, and the findings of others, may help to formulate a policy for the management of those patients who have recovered from the hemorrhage that brought them to the hospital. That over 50% of these patients will bleed again, a few fatally, and that 75% will have symp-

toms that require medical attention, are potent arguments for surgical therapy. Other factors, such as the duration and location of the ulcer and its previous response to medical therapy, must also be considered. It would seem reasonable to advise operation on those patients who have been known to have a symptomatic ulcer, particularly if they are men over 40 years of age.

Gastric resection, with an expected satisfactory result in 85 per cent of the cases, certainly offers the best protection against future hemorrhage. Lesser procedures, excluding vagotomy (about which we have no information yet) are not advisable. The respective percentages speak for themselves: recurrent bleeding in less than 5% after gastric resection, in contrast to 45% after the lesser procedures.

LKF:HBJ



No man can have a peaceful life who thinks too much about lengthening it.—*Seneca*.

INFECTIOUS MONONUCLEOSIS WITH INTENSE JAUNDICE OF LONG DURATION

By H. L. Abrams, M.D., Brooklyn, New York

Condensed from the New England Journal of Medicine

JAUNDICE in infectious mononucleosis was first described in 1923 by Downey and McKinlay. Since that time, about 100 cases have been reported in the literature; it is logical to suppose that many more have gone unreported. Various authors have found the incidence of jaundice in infectious mononucleosis to range from 0 to 13%.

Among 64 patients with infectious mononucleosis seen at the Long Island College Hospital during the past 10 years, 6, or 9.4%, showed jaundice clinically. The cephalin-flocculation test was definitely positive in 13 of the 25 patients on whom it was performed, and questionably positive in 6 others. This suggests that a far greater number of patients with infectious mononucleosis have liver damage than the presence of clinical jaundice indicates, although it is known that other conditions than liver disease may cause a positive test.

Most cases of jaundice in infectious mononucleosis have been of short duration and

slight intensity. Five of the 6 cases in our study showed icterus for a period of 10 days or less, while the other was visibly icteric for at least 11 weeks. The highest icteric index in our group was 210; in the other five cases no figure higher than 31 was obtained. In the one severe case the bilirubin reached 27.5 mg. per 100 cc.

Leukopenia is not uncommon during the first week of infectious mononucleosis, but usually the white-cell count rises before the temperature returns to normal.

The therapy of infectious mononucleosis should be revised in the light of present knowledge of the frequency of liver involvement. Dietary therapy should be similar to that in infectious hepatitis, with a high-calorie, high-protein, high-carbohydrate diet. The early ambulation commonly allowed should be restricted in many cases. Certainly, bed rest should not be discontinued until laboratory evidence of hepatic involvement has disappeared. The experience of

some patients, who have a long period of weakness and malaise after the illness is apparently at an end, might

thus be avoided, and the possibility of recurrence or of permanent hepatic damage would be diminished.

TAJ:HBJ



CANCER RESEARCH FUNDS

The urgent need for more laboratory and clinical space for research in cancer was brought out yesterday in the recommendations of the National Advisory Cancer Council of the National Cancer Institute. The Council named 21 universities and hospitals as being in great need of more facilities if they are to carry on desired scientific projects in the cancer research field.

"Altogether more than \$8 million dollars is involved in requests favorably considered by the Council," explained Dr. A. C. Ivy, Executive Director of the Council and Vice President of the University of Illinois. "These are the institutions at the head of the list. Undoubtedly there will be more to come in the next year."

The Council which acts in an advisory capacity to the National Cancer Institute of the U. S. Public Health Service, meets every three months to consider requests for grants to aid cancer research. It is composed of the following outstanding cancer research experts from the various parts of the country. Dr. Charles Huggins of the University of Chicago, Dr. Robert S. Stone of the University of California, Dr. Childs Warren of Harvard, Dr. Waltman Walters of Mayo Clinic, Dr. Edward A. Doisy of St. Louis University and Dr. John J. Morton, Jr. of the University of Rochester.

In naming the institutions, the Council recommended that the \$2,053,000 now available in Institute funds for the construction of non-Federal research facilities be stretched as far as possible and where most needed among the 21. It was also recommended that if the contract authorization of \$8 million, unanimously passed a week ago by the House of Representatives is approved by the Senate, that it be used to complete the grants.—*Release, USPHS.*

THE TREATMENT OF CERTAIN PSYCHONEUROSES BY MODIFIED INSULIN THERAPY

By M. Carnat, M.D., F. J. Edwards, M.D., and E. I. Fletcher, B.A.

Condensed from the Canadian Medical Association Journal

WE have studied 197 psychiatric cases—most of them psychoneuroses—who were given modified insulin therapy. Those patients who exhibited anxiety and tension objectively in terms of disordered function of the vegetative nervous system were considered ideal for this form of therapy.

Each patient, on admission, was given a complete physical and neuropsychiatric examination, and laboratory studies were made. Psychotherapy was given, the amount of time devoted depending on the particular case being treated.

TECHNIC. Patients were placed in wards of six, to minimize noise and disturbances. They were advised to have only a light lunch during the evening with no sugar or candy, and not to eat after 10 p.m. At 7:30 a.m. they were given an injection of crystalline zinc insulin, commencing at 10 U. and increasing 10 U. per day, until the desired effect was obtained. Maximum dosage varied from 60 to 120 U., usually about 80 to 90.

The treatment was terminated at 10 a.m. by giving a glass of fruit juice with added glucose. This was followed by a heavy breakfast.

Within a few days of commencement of treatment, patients who previously had breakfasted on coffee and cigarettes were demolishing and enjoying enormous meals. With gradual increase in the dosage of insulin they began to relax and sleep during the hours of treatment. They would perspire profusely. They usually described their sensations as "light, airy and floating along." The wards were kept quiet and darkened during this period and patients were encouraged to sleep. Dosage was stabilized to produce a reaction just short of sopor.

Patients were under close supervision by the staff trained in the technic. Their condition during treatment was charted. Severe reactions were kept to a minimum; only rarely was it necessary to give intravenous glucose.

Following breakfast all pa-

tients were up, and after completing their toilet, were occupied during the remainder of the day with physiotherapy, occupational therapy, and educational activities.

The treatment was given six days a week, with Sunday for rest. Insulin was given for periods varying from 8 to 53 days. The average duration of treatment was 21 days.

MODE OF ACTION. The exact mode of action of insulin on the nervous system is not definitely known. It is probable that hypoglycemia influences favorably the functioning of the vegetative nervous system.

RESULTS. The gain in weight of our patients averaged slightly over 10 pounds. Of the 197 cases, 119 (60.3%) showed good results, with an average weight gain of about 11 pounds. Sixty nine (35%) with a fair result gained about 9 pounds. Nine cases (4.6%) with a poor result only gained about 7 pounds. Thus there

appears to be a definite correlation between symptomatic improvement and weight gain.

We treated patients as young as 18, and as old as 55 years. The average duration of frank symptoms in 190 cases was 27 months; definite emotional factors, associated with the onset of symptoms, could be found in almost every case. The diagnosis in the 197 cases was, for the most part, psychoneurosis— anxiety state, either relatively acute, or chronic with a recent exacerbation of acute anxiety.

Until recently only 20 (about 10%) of the original 197 have returned to us with a recurrence of their symptoms. Of these 20, two were re-admitted for further therapy. These cases have, with few exceptions, proved to be ones in which the original results were fair or poor—often persons with hysterical personalities or states of long-standing chronic anxiety.

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SBH:HBJ



A man must make his opportunity, as oft as
find it.—*Francis Bacon.*

RUTIN THERAPY FOR INCREASED CAPILLARY FRAGILITY AND RETINOPATHY ASSOCIATED WITH DIABETES MELLITUS

By L. M. Levitt, M.D., M. R. Cholst, M.D., R. S. King, M.D., and M. B. Handelsman, M.D., Brooklyn, New York

Condensed from the American Journal of the Medical Sciences

IN THIS study an attempt was made to determine the effects of rutin on the capillary fragility and retinopathy of diabetic patients, and to ascertain whether any improvement in one was accompanied by changes in the other.

We studied 12 diabetic patients who showed retinal hemorrhages and increased capillary fragility. For one month prior to the beginning of rutin therapy, the patients were given 100 mg. of ascorbic acid 3 times daily. Then they were given 20 mg. of rutin 3 times a day for 2 months; the dose was increased to 40 mg. 3 times a day for another month. Five of our patients were given 100 mg. of ascorbic acid 3 times a day, with the rutin, for the entire period of study.

Capillary fragility was determined by the positive pressure test as modified by Wright and Lilienfeld.

During the 3 months of the study all but one of our patients received insulin, the range of the daily dosage

varying from 10 to 55 U. Only 2 of the patients showed glycosuria during the period of observation. None reported hypoglycemic reactions. Throughout the period of observation no changes were made in the diabetic regimen of any patient, so that improvement could not be attributed to better management of the diabetes.

Each patient had been followed in the ophthalmology clinic. Ophthalmoscopic findings were re-examined and charted at each visit. A disappearance of any of the previously charted retinal hemorrhages, without the advent of new areas, was recorded as an improvement.

RESULTS. After treatment, improvement in skin capillary fragility occurred in only 4 of the 12 patients. Two of these 4 had hypertension; their blood pressure dropped to normal levels while they were under observation. The other 2 had normal blood pressure.

Punctuate hemorrhages of the type associated with dia-

betes were found in 23 fundi of the 12 patients at the onset of the study. After rutin therapy for 3 months, improvement was found in only 5 of these eye-grounds. Two of the patients in whom retinal improvement occurred did not demonstrate any decrease in the skin capillary fragility. Two patients who showed an increase in skin capillary resistance showed no improvement in the ophthalmoscopic picture. There were only 2 patients in this series who showed improvement in both the retinal picture and the skin capillary fragility. Both of these were hypertensives whose blood pressure returned to normal during the period of observation.

None of the improvement could be attributed to better diabetic control; nor could it be correlated with the blood glucose level, the blood cholesterol, serum albumen and globulin levels, or concomitant ascorbic acid therapy. Similar resorption of retinal hemorrhages can be found in patients who receive no rutin therapy, when good control of their diabetes is maintained.

CLB:HBJ



STREPTOMYCIN CURE OF PLAGUE REPORTED IN INDIA

STREPTOMYCIN cure of plague was reported by General Sir Sahib Singh Sokhey, director of the Haffkine Institute in Bombay.

In experimental tests with plague-infected mice, streptomycin treatment resulted in 100% cures.

When 87 human patients with bubonic plague, including 15 in an advanced, usually fatal stage of the disease, were given streptomycin treatment, all but two recovered.

The streptomycin used in these studies and to treat the patients was donated by Dr. Robert D. Coghill of Abbott Laboratories, North Chicago, Ill., and the British Medical Research Council.—*Science News Letter*, February 21, 53: 121, 1948.

GASTRIC CARCINOMA IN ADDISON'S ANEMIA

W. A. Bourne, M.D., F.R.C.P.

Condensed from the British Medical Journal

DURING the past two years I have observed in my patients 15 cases suffering from pernicious anemia in order to determine if there is any relationship between it and the development of gastric carcinoma. These observations resulted in the discovery of 3 cases of carcinoma in patients free from symptoms and clinical signs.

Observations were made of 11 females and 4 males. The patients in this series were all under 65 years of age and had been treated for ten years or more. Radiological examination consisted of a barium swallow, fluoroscopy, and usually a film and gastroscopy.

In these cases the carcinomatous area was in the lower third, where radiology demonstrated narrowing even in the 2 cases which were at a very early stage. There seems to be no pathologic reason for this general contraction of the py-

loric area, though it may be the first indication of the carcinomatous change. On the other hand, it may be a permanent characteristic of these stomachs.

The lower stomach is not usually abnormal in pernicious anemia, and gastroscopy confirms this. Cases of pernicious anemia show an abnormal mucosa in the prepyloric area and should be viewed with as much suspicion as hyperchlorhydric cases with prepyloric ulcers.

In pernicious anemia, carcinoma may arise in 2 ways. It is suggested as a basis for further full observation that the commoner prepyloric carcinoma does not arise in localized polyposis but is associated with rather diffuse mucosal changes detected by gastroscopy at an early stage, and with narrowing of the prepyloric area demonstrable radiologically.

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LKF:CBH

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AUGUST, 1948

NUMBER 2

DIGEST OF TREATMENT

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STREPTOMYCIN IN GENITO-URINARY INFECTIONS

By Clarence G. Bandler, Philip R. Roen and Victor J. Mulaire, New York

Condensed from the Journal of Urology

AN analysis and evaluation of the effects of streptomycin in a series of 15 cases of urologic infection has been made. Although this is not a statistically significant number, some helpful observations have been made which are herewith summarized.

The antibiotic streptomycin is a valuable addition to the presently existing armamentarium of urologists. There are instances where the ordinarily used chemotherapeutic and antibiotic agents have been inadequate, and wherein streptomycin apparently proved to be lifesaving.

Where organisms are susceptible to the action of streptomycin, the urine may be completely sterilized. The failure to correct underlying pathologic lesions, such as obstructive factors, is definitely responsible for the recurrence of infection following streptomycin therapy and may be a factor in the development of bacterial resistance to this antibiotic agent.

In the presence of a foreign body, e.g., calculus, nephros-

tomy tube, etc., renal infection may be eliminated temporarily by streptomycin where the offending organism is susceptible to this medication. However, this sterilization of the urine is not permanent and there soon is recurrence of the same organisms.

In vitro tests of susceptibility of an organism to streptomycin cannot always be relied upon to determine its effect in the patient. The immunologic response and resistance of the patient, when added to the streptomycin effect may change the entire clinical response to the antibiotic.

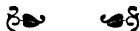
In some cases with pronounced febrile reactions, it has been observed that following the administration of streptomycin, there has been clinical improvement, despite the fact that bacteria were still present in urine cultures, indicating that streptomycin has been, perhaps, effective in altering the pathogenicity of the organisms. Whether the change is qualitative or quantitative has not been determined.

In nonspecific prostatitis it is possible to free the prostatic secretions of pathogenic bacteria for brief periods; however, insofar as the clinical findings and subjective symptoms are concerned, streptomycin does not change the course of this disease entity.

The streptomycin presently available has definite neurotoxic properties. In this series of 15 cases there were 2 cases

of toxic labyrinthitis and 1 case of involvement of the left recurrent laryngeal nerve. In a fourth case there was mild and transitory involvement of the facial nerve. This is an incidence of over 25% of toxic reactions in this small series of cases. In view of the potential toxicity of streptomycin, its prophylactic use in urologic surgery should not be indiscriminate.

BH:KOE



NOTICE TO SUBSCRIBERS

DELAYS IN THE APPEARANCE of this and other recent issues of the DIGEST OF TREATMENT have been due to present unsettled conditions in the printing trades.

A return to original schedules is expected as soon as a settlement of these difficulties is reached.

STREPTOMYCIN IN THE TREATMENT OF INTESTINAL TUBERCULOSIS

By N. Markoff, M.D.

Translated and Digested from the Schweizerische Medizinische Wochenschrift

WE have used streptomycin in the treatment of five cases of intestinal tuberculosis. Since our results in these cases have been favorable so far, we are presenting a study of our technic and results.

Various observers have found that after parenteral administration of streptomycin about 2-6% of the drug is excreted via the intestine. Excretion reaches a maximum within the first two hours, and is complete by the end of 24 hours. Streptomycin can also be demonstrated in the peritoneal fluid following parenteral administration.

Oral administration of this drug divided into small doses, may be advisable in the therapy of intestinal infections, because streptomycin is unchanged by the gastric juice, and there is little absorption from the bowel. Local therapy in the intestine is also satisfactory, if no stronger than a 0.5% to 1.0% solution is used.

Ulcerative and hyperplastic forms of intestinal tuberculo-

sis are commonest in the ileocecal region. It seemed to us worthwhile to try local therapy by means of a high colonic injection of streptomycin solution, inasmuch as such an injection, if properly given, will pass through the ileocecal valve into the distal portion of the ileum. Accordingly, we used solutions of 250 mg. of streptomycin dissolved in 500 cc. of physiologic saline, to which a few drops of tincture of opium had been added. Injections were given daily for 14 to 15 days.

All 5 of the cases in this study received parenteral as well as enteral (local) therapy with streptomycin.

In case the principal involvement is in the lower colon and in the rectum, where proctoscopic study is possible, colonic irrigation with streptomycin should be equally satisfactory. If, on the other hand, the tuberculous lesions are most extensive in the proximal portions of the small intestine, as is less likely to be the case, oral or

parenteral streptomycin therapy might be considered. No toxic effects would be expected, if streptomycin were given orally, since absorption from the intestinal lumen is minimal. Large doses would have to be given over a long period of time, however, so the cost of oral treatment would be considerable; parenteral therapy might therefore be more advisable because of its greater economy.

Two effects of streptomycin therapy are noted, in intestinal tuberculosis. First, there appears to be a detoxification, with improvement in the general condition, a falling of fever, and improvement of the appetite. Then there is also a favorable influence locally, as manifested by a regression of the peritoneal signs and of the symptoms attributable to ulceration. Roentgenologically the ulcers may be observed to heal. Functional stenosis may also disappear. A normal stool habit is re-established, as

is the return of normal stool metabolism.

The injections were well tolerated by our patients. No undesirable local effects followed the treatment. After a few days of therapy, all 5 patients showed a striking symptomatic improvement. This has persisted at least 6 months, in every case.

We have not yet observed a complete cure, however. The roentgenologic changes, too, clear up only incompletely. Yet our preliminary results have been so good, particularly in contrast to those obtained by other methods of therapy, that we feel justified in continuing the streptomycin treatment which we have described in this article.

We have observed no untoward side-effects of streptomycin in this group of cases. On the other hand, neither did we notice any amelioration of the existing pulmonary tuberculosis.

TREATMENT OF THE MIGRAINE ATTACK

By Arnold P. Friedman, M.D., and Charles Brenner, M.D., New York

Condensed from the American Practitioner

IN the present paper we wish to discuss the symptomatic treatment of the migraine attack rather than the long term management of the migraine patient.

We are, therefore, presenting the results of our experience in the use of various drugs in the symptomatic treatment of 94 patients with migraine in an effort to evaluate their relative efficacy.

ergotamine and its derivatives are unequalled in the symptomatic treatment of migraine.

However, as Table I also shows, the results obtained by the use of ergotamine and its derivatives are still far from perfect even when care is taken to give an adequate dose as early as possible after the onset of symptoms. The results could be improved by having the patients who were not relieved by taking the

TABLE I *Effectiveness of Ergotamine and its Derivatives, Vasodilator Drugs and Analgesic Drugs in Relieving Attacks of Migraine in a Group of 94 Patients*

Drug Types	Good Relief	Fair Relief	No Relief	Total Number of Trials
Ergotamine & derivatives	53%	20%	27%	161
Vasodilators	13%	22%	65%	31
Analgesics	21%	23%	56%	53

The drugs we have used fall into three main groups: ergotamine and its derivatives, vasodilators and analgesics. Table I indicates that ergotamine and its derivatives are distinctly superior in therapeutic efficacy to either of the other types of drugs. These results are in accord with current medical opinion that

drug orally take it by injection instead, but this procedure again does not insure certain relief and it has the drawbacks of technical difficulty on the one hand and an increase in the incidence of unpleasant side effects (nausea and vomiting) on the other. In the hope of improving the results obtained from ergota-

mine, one of us (A.P.F.) suggested two modifications in its administration: first, that it be administered in a rectal insert in combination with atropine, and second, that it be given orally in combination with caffeine. We have also used dihydroergotamine methanesulfonate (D.H.E.-45, Sandoz) which has been reported to be more efficacious than ergotamine itself in relieving migraine attacks.

From our figures it appears that the best results have been obtained by the combination of ergotamine tartrate (1 mg.) and caffeine citrate (100 mg.) by mouth and the use of rectal inserts containing ergotamine tartrate (2 mg.) and atropine sulfate (0.4 mg.). The regimen employed by us in the use of those drug combinations is as follows: Ergotamine and caffeine in the above dosage were given as a tablet*. Three tablets were admin-

istered at the outset followed by 1 each half hour to a total of 6 tablets if necessary. The ergotamine and atropine were given in the above dosage as a rectal suppository, 1 insert at the start and 1 each half hour to a total of 3 if necessary. There is no apparent difference between the efficiency of these two preparations, and both seem distinctly superior to either of the other two: ergotamine tartrate by mouth and dihydroergotamine methanesulfonate (D.H.E.-45) by mouth. These two in turn appear to be of approximately equal value.

We have also made preliminary trials of another ergotamine derivative, dihydroergocornine (D.H.O.-180) both orally and parenterally in a small group of cases. Results so far have been inconclusive but further trials will be made.

*The ergotamine and caffeine were prepared in a single tablet for this investigation by the Sandoz Chemical Works, Inc., 68 Charlton St., New York 17, N. Y., as were the rectal suppositories containing the combination of ergotamine and atropine. Neither preparation is as yet available on the market.

VISUAL-FIELD INTERPRETATIONS IN CHIASMAL LESIONS

By D. Kravitz, M.D., Brooklyn

Condensed from the American Journal of Ophthalmology

THE greatest difficulty in visual-field interpretations is from lesions in the chiasmal region. In this area lies the optic chiasma which is made up of visual fibers from the optic nerves that enter into it anteriorly. After a rearrangement of the fibers, they leave the chiasma posteriorly as the optic tracts. It is only in this region, therefore, that it is possible to get field changes limited to one eye or to both, and varying from blindness to temporal or nasal defects and to combinations of these.

This compact area contains many structures, pathologic conditions of which may cause field defects. Above the chiasma is the diencephalon, and below are the pituitary gland and the base of the skull. Surrounding the chiasma is the circle of Willis with its many anastomosing vessels, the main cerebral arteries, the venous sinuses, some of the intracranial nerves, and the meningeal membranes with their arachnoidal granulations.

Within the chiasma, the fibers from the optic nerves

are arranged in a fairly regular pattern. Those from the inferior nasal halves of the retinas cross in the anterior part of the chiasma until almost to the other side; while the fibers from the superior nasal halves of the retinas stay on the same side of the chiasma until almost to the optic tracts and then cross in the posterior part of the chiasma. After crossing, the fibers leave the chiasma, posteriorly as the optic tracts, and form the inferior and superior nasal halves of the tracts. The fibers from the lower temporal halves of the retinas stay near the outer borders of the chiasma, while the fibers from the superior temporal halves arch toward the middle. The temporal fibers do not cross but proceed posteriorly to form the lower and upper temporal halves of the optic tracts. The macula fibers also divide into crossed and uncrossed fibers, the crossing taking place near the posterior border of the chiasma.

In typical pituitary tumors, the pressure is first on the an-

terior border of the chiasma causing loss of the upper temporal fields. Later there is loss of the lower temporal fields. The arched fibers from the upper temporal quadrants are next involved, and lastly, those near the lateral borders, causing loss of the lower and upper nasal fields, respectively. A pituitary tumor may grow under the chiasma and press upon an optic nerve, resulting in monocular blindness before involving the other eye; or, it may grow backward and press upon an optic tract, resulting in homonymous hemianopsia. The suprasellar tumors usually press from above downward, often upon the posterior part of the chiasma so that the macula fibers may be involved. Third-ventricle tumors usually involve the posterior part of the chiasma and the macula fibers. As a rule, atypical field defects are due to tumors other than pituitary tumors.

Of primary interest in this area is the pituitary gland. Roughly, the gland is made up of two parts—the anterior and posterior lobes. The posterior lobe starts as an out-pouching from the diencephalon and grows downward, retaining its connection with the brain by means of a stalk,

the infundibulum. The anterior lobe starts as an out-pouching from the posterior wall of the pharynx and grows upward and around the posterior lobe to invest it. As the base of the skull develops, the anterior lobe loses its connection with the posterior pharynx. Vestigial remains of the buccal part of the pituitary gland may be found in the posterior wall of the nasopharynx, lining an opening sometimes present from the pituitary fossa to the base of the skull—the craniopharyngeal canal; or they may appear as a small island of primitive tissue within the sella turcica. Either of these may commence to grow and form the so-called Rathke's pouch tumor, craniopharyngeoma, or suprasellar cyst.

The gland lies within a fossa, the sella turcica, the roof of which is formed by dura called the diaphragma of the sella. This is pierced by the pituitary stalk. The optic chiasma lies above the sella turcica with the pituitary stalk in proximity to its posterior border. Just anterior to the sella turcica is the tuberculum sellae which is sometimes the seat of a meningioma giving rise to the so-called

pituitary syndrome of the adult.

Lateral to the chiasma are the internal carotid arteries which here divide to form the middle and anterior cerebral arteries. These give off anterior and posterior communicating branches which join with communicating branches from the posterior cerebrals to form the circle of Willis. Aneurysms and sclerotic changes in these vessels may press upon the chiasma and cause field changes. Anterior to the chiasma are the olfactory grooves on the base of the frontal lobes of the brain. These are sometimes sites for tumors which may be difficult to differentiate from chiasmal lesions.

As previously stated, the stalk of the pituitary gland arises from the diencephalon, which here is the floor of the third ventricle. Tumors in this area may give symptoms and field changes difficult to distinguish from pituitary adenomas or from suprasellar cysts.

Atypical field defects from pituitary tumors may be due to anatomic differences in the pituitary fossae. In some cases, the anterior or posterior walls may be faulty, and the tumor will naturally grow in

the direction of least resistance. The direction of growth may also be influenced by the relation of the thickness of the anterior and posterior walls and also by the diaphragma sellae. The latter may be thick and strong; or it may be very thin or even missing. The opening for the hypophysial duct may be very large so that a tumor can go through without rupturing the diaphragma. In these cases, the tumor may not cause enlargement of the sella but will present as a suprasellar growth. It is also interesting to note the relation of the sphenoidal sinuses to the pituitary fossa. The intervening bone may be so thin or deficient that a retrobulbar neuritis from sinus infection can readily be explained. Very occasionally a bitemporal field defect may be found in this condition. Rarely, the pituitary tumor may rupture and grow into the sinus.

In addition, anatomic variations of the blood vessels may help to modify the field changes. The anterior cerebral arteries are most commonly at fault in this respect. These usually cross over the optic nerves, but at times may cross the optic chiasma, and rarely

may be found as far back as the optic tracts. Less often the posterior communicating arteries which connect the internal carotids with the posterior cerebrals may pass over the optic tracts. In all of these locations, a tumor from below may press the chiasma against the vessels so that they may act as pressure cords with consequent destruction of visual fibers. In addition to direct pressure, a certain amount of ischemia due to interference with the local blood supply may further modify the fields.

With the field defects, there are frequently clinical signs and symptoms which are of help in localizing the lesions.

The mammillary bodies and the tuber cinereum surround the base of the stalk. These structures are part of the hypothalamus which controls the vegetative nervous system. The posterior portion seems to regulate the sympathetic system, while the anterior part regulates the parasympathetic system. Injury to these parts causes diabetes insipidus, Frölich's syndrome (adiposogenital dystrophy), disturbances in sugar and fat metabolism, disturbances in temperature regulation (particularly around the third ven-

tricle), disturbances of emotions, and disturbances of sleep, so that there may be drowsiness, loss of sleep or sleep inversion.

Pituitary adenomas are the most frequent tumors in the chiasmal region. To date, there has been no recorded tumor of the posterior part of the pituitary gland. The anterior portion consists of two types of cells: (1) Cells which contain granules that take either the acid stain—acidophiles, or the basic stain—basophiles. (2) Cells with large nuclei and clear-staining plasma—the chromophobes.

Tumors of the acidophile cells cause symptoms which vary according to the age of the patient. In the young, whose bones are still in the stage of growth, the outstanding features are gigantism and early development of the secondary sex characteristics. In the adult, there is acromegaly, characterized by overhanging supraorbital margins, broadening of the nose, and progressive enlargement of the hands and feet.

According to Cushing, tumors of the basophile cells result in hirsutism and elevation of blood pressure, symptoms usually associated

with tumors of the adrenal glands.

Abnormal growth of the chromophobe cells results in pressure atrophy of the chromophile cells. The symptoms are, therefore, due to loss of function of the latter. In children, there is infantilism; while in adults, there are increases in the body fat and loss of libido or menses.

Features common to the above tumors are enlargement or destruction of the sella turcica, field defects which progress to blindness, and primary optic atrophy. Typically, there is first a loss of the upper temporal field, then the lower temporal, lower nasal, and, last, the upper nasal field. The tumor may occasionally cause blindness in one eye before involving the fields of the other eye, or there may even be homonymous hemianopia because of involvement of the optic tracts. Infrequently, the tumor may break through the diaphragma of the sella and cause symptoms resulting from irritation or destruction of the diencephalic region of the brain.

The next most common type of tumor is the craniopharyngioma. As these tu-

mors are derived from embryonal rests, they usually occur in the young. In fact, next to cerebellar tumors, they are the most frequent tumors of childhood. The field changes are varied but more or less typical of tumors in the chiasmal region. Because of pressure on the posterior part of the chiasma, central or caecocentral scotomas are frequent. There may be primary or secondary optic atrophy or even choked discs. Frequently symptoms of involvement of the diencephalon are present. In addition, they cause destruction of the chromophile cells and give symptoms characteristic of chromophobe tumors. The sella turcica may or may not be enlarged. X-ray examination of the skull usually shows the presence of calcified plaques in the chiasmal region.

Meningiomas of the tuberculum sellae are fairly frequent. They are benign and can be removed in toto if not too large, so that an early diagnosis is important. They arise from the meninges, probably from the arachnoidal granulations in the venous sinuses. They are called the chiasmal syndrome of the adult. Recently, Schlezinger

reported such a tumor in a girl, aged 16 years. This is considerably below the average age. These tumors usually present anteriorly to the chiasma and press directly on the optic nerves, causing atypical temporal field defects. Because of the vulnerability of the macula fibers, central and paracentral scotomas are frequent. Primary optic atrophy is constant and progressive. The sella turcica is not enlarged, because the tumor is well outside of the sella turcica.

Among the less common tumors in this region are tumors of the sphenoidal ridge. These cause a progressively increasing exophthalmos, paralyzes of the external ocular muscles, and atrophy of the optic nerve. X-ray examination shows increased density of the sphenoid ridge. All the findings are on the side of the lesion. The condition is sometimes known as the syndrome of the cavernous sinus.

Aneurysms of the circle of Willis have been fully described by Walsh. They are characterized by unusual field changes, frequently with central or paracentral scotomas, pains in the back of the eyes,

and ocular-motor paralyzes, most commonly involving the third nerve. A previous episode of subdural bleeding makes the diagnosis definite.

Third-ventricle tumors are uncommon but should be thought of in patients giving symptoms and field changes suggestive of lesions around the chiasma. There are usually disturbances of the vegetative nervous system, especially the persistence of an unexplained fever. Central and paracentral scotomas are frequent.

Arachnoiditis in the chiasmal region may give symptoms typical of tumor. In fact the cysts often found are a form of tumor. There is usually a history of rapidly developing blindness. The discs have the peculiar appearance of a mixed primary and secondary atrophy. A preceding history of head trauma, sinus infection, or lues is of etiologic importance. If tumors are suspected, early surgery, before irreparable blindness supervenes, is important.

Meningioma of the olfactory groove is really a frontal lobe tumor. A Foster-Kennedy syndrome, optic atrophy on the same side with a choked

disc in the other eye, is an important sign if found. More frequently, it is absent, and occasionally it may be present in other conditions. Anosmia,

loss of smell, on the side of the lesion is present.

Other tumors, such as chordomas, are rare and are usually diagnosed at operation.

FOH:RDD



USE OF SERUM GAMMA GLOBULIN ANTIBODIES TO CONTROL CHICKEN POX IN A CONVALESCENT HOSPITAL FOR CHILDREN

The entrance of a person with a contagious disease into a children's hospital of a convalescent home always disorganizes the institution. A review of the patients' charts is imperative to determine those who are susceptible to the disease. The victim of the contagious disease must be transferred to his home, thus exposing others, or he must be sent to a contagious hospital.

Chicken pox often enters institutions in spite of all preventive efforts. While it is usually not a dangerous disease, it is one of the most contagious of the exanthemata.

There were 4 separate episodes of chicken pox in a convalescent hospital for crippled children. All unprotected children, those who had not had chicken pox, were given immune serum globulin in doses as follows:

Under one year of age, 2 cc.

Two to 4 years of age, 3 cc.

Four to 6 years, 4 cc.

Over 6 years, 5 cc.

Of the 77 given the immune gamma globulin, if the accepted incubation period is 14 to 21 days, there were 3 failures. Seventy children were protected.

A single case of chicken pox developed 1, 2, 6 and 10 days after the administration of the immune globulin. This experience seems to justify the conclusion that the administration of immune serum globulin (human) is of value in institutions and in selected instances when it is deemed advisable to modify or prevent chicken pox.—*Wm. L. Funkhouser, M.D., Journal of Pediatrics, March, 32: 257-259, 1948.*

JFS:CHC

PENICILLIN IN DROPS FOR PROPHYLAXIS AGAINST OPHTHALMIA NEONATORUM

A Single Instillation Method

By H. Charles Franklin, M.D., Memphis

Condensed from the Southern Medical Journal

THE present study was undertaken to evaluate the use of only one instillation of penicillin with mechanical cleansing of the eyes.

For a five-month period penicillin in drops was used for prophylaxis in the eyes of each newborn infant delivered at the John Gaston Hospital, Memphis, Tennessee.

The mothers of the infants studied were nearly all charity patients of whom 85.3% belonged to the Negro race.

Penicillin was used in the form of the crystalline sodium salt of penicillin. A concentration of 2,500 units per cubic centimeter of sterile isotonic sodium chloride was used. The solution was kept in a sterile one ounce emerald green dropper bottle. It was kept refrigerated below 59° F. (15°C.) when not in use, and was not allowed away from refrigeration for more than five minutes at any one time. A fresh solution was made as needed but was not kept longer than five days. Sterile iso-

tonic sodium chloride solution was used for irrigation of the eyes.

Prophylaxis of the eyes of each newborn infant was carried out in the delivery room within one hour after birth. The eyelids and adjacent area of the newborn infant were cleansed of contaminating secretions by gently wiping with a large ball of sterile cotton from the inner canthus outward. The eyes were closed at the time. Gauze was then used on the fingers for traction to open the eyelids while each eye was flushed thoroughly with sterile isotonic solution of sodium chloride. Four drops of penicillin solution were then instilled into the conjunctival sac of each eye.

When an infant exhibited pus in its eyes, a culture was taken from the conjunctival sac of each eye.

A total of 1,177 infants was studied in the nursery. Thirteen (1.1%) of the 1,177 infants exhibited pus in one or

both eyes after penicillin prophylaxis. All cultures of the 13 infants who exhibited pus in the nursery were positive. Two-thirds of the organisms isolated were staphylococci.

Abnormalities other than the presence of pus were evaluated. Two hundred infants were followed to note the incidence of eyelid swelling, conjunctival redness, and watery discharge. Abnormalities occurred most frequently on the day of birth and the first day of life. During these days swelling of the eyelids was noted in 20% of the infants; conjunctival redness in 37%, and watery discharge in 0.5%.

A complete follow-up was made on a total of 952 infants (80.9%). At the time of the public health nurses' examinations (14th to 17th day), 902 infants were normal. Pus was found in the eyes of 28 (2.9%) at the time of the examinations. Other abnormalities, conjunctival redness, swelling of the eyelids or a watery discharge, were noted in 14 (1.5%) by the public health nurses. Twenty-one out of the 28 infants who exhibited pus after leaving the hospital were cultured. All of the cultures were positive except one.

Staphylococci accounted for 80% of these organisms.

The incidence of 1.1% of infants exhibiting pus in the eyes while in the nursery is low as compared to the incidence after silver nitrate prophylaxis (6.0%). This incidence is also lower than that found when the multiple instillation method was used (2.1%).

Any manipulation of the eyes of a newborn infant in the nursery, even though done carefully, invites a possibility of contamination. Thus, a method requiring only a single instillation may be preferred.

The incidence (2.9%) of infants exhibiting pus in the eyes at home as found by the public health nurses differs only slightly from that found after using a multiple instillation method of penicillin prophylaxis (3.1%) and after using silver nitrate prophylaxis (2.4%). It is probable that the hygienic condition of the home influences considerably the incidence of all types of eye abnormalities occurring at home during the first two weeks of life.

There was no known instance of conjunctivitis caused by the gonococcus, either in

the nursery or at home, in this series or the previously reported series using four instillations. The combined series constitute a total of 2,138 infants studied after treatment with penicillin prophylaxis.

CBL:KOE



10-MINUTE OPERATION FOR MENTALLY ILL

A safe, simple, 10-minute operation that is restoring mentally sick people to health and sanity was announced by Dr. Walter Freeman of Washington at the meeting of the American Psychiatric Association.

Combined with electro-shock treatment, it succeeds in one-third of the schizophrenia patients and one-half of those suffering involuntional mental disorders. These last are patients suffering depressions and other abnormal mental states due to severe emotional disturbance at or just after mid-life.

In the operation Dr. Freeman drives a sharp, slender instrument through the bony part of the eye socket into the front of the brain. The instrument is then swung through an arc of 30 degrees and withdrawn. The same operation is performed on both sides.

The patient is first given two electro-shock convulsions at one- or two-minute intervals. Then, while he is still unconscious, the operation is swiftly performed. No anesthetic is needed. And since the eye socket area is normally germ-free, and the tears flow freely after electro-shock, no sterilizing of the area with anti-septics is needed.

Within an hour after the operation some patients are able to get out of bed, talk, swallow liquids and perform simple activities. In favorable cases, patients have returned to their former jobs or occupations within two weeks and have continued to maintain themselves satisfactorily.—*Science News Letter*, May 29, 53: 338, 1948.

PSYCHOTHERAPY OF THE OBESE PATIENT

By Henry B. Richardson, M.D., New York City

Condensed from the New York State Journal of Medicine

OBESITY of the exogenous type in women may be a result of a personality disturbance, the physical expression of which is the accumulation of fat. The obesity is almost invariably accompanied by abnormal craving for food which is associated with a variety of nervous symptoms. The treatment is psychotherapy. The fundamental drive is a desire of the patient to regain the love and affection which was hers without the asking when she was an infant. This indicates that eating and the accumulation of fat in the obese woman are an integral part of a personality disturbance dating from early childhood.

A number of motives for excessive eating can be elicited, in addition to the appetite. The most frequent complaint is a feeling of emptiness, a boundless void, which can never be filled and is out of proportion to the physiologic needs. Other symptoms such as resentment, guilt, self-depreciation, depression, and anxiety are common.

The therapist must get the

essential facts. He wants to know the spontaneous associations between the physical aspects of her illness and the mental and emotional components. He must avoid leading questions although he may guide the patient in lines of thinking. Such an interview is essentially a conversation and should be far removed from the question-and-answer of a routine medical history. In other words, the therapist must be a good listener and must try to ease the pangs of her tyrannical conscience; or in psychiatric terms to mitigate the harshness of her super-ego.

When the emotional life is allowed to flow in natural channels the compulsive quality of the eating diminishes. The ensuing reduction of weight is an index of an improved adjustment.

The therapist plays his greatest part through the role of interpretation. He should make all of these in an oblique, neutral, or tentative form and should minimize topics which are damaging to

the emotional security and self-esteem of the patient. Most patients require intensive psychotherapy based on a deliberate application of the principles of psychiatry to medical practice. The relationship between emotional factors and eating is shown directly only by means of the spontaneous associations

which are made by the patient.

The initiative for the conversation remains with the patient but the direction is supplied by the therapist. The effect of interpretation depends on the doctor-patient relationship which is analogous to the phenomenon of transference in psychiatry.

TAJ:CBH



X-RAY TELESCOPE

A new weapon for fighting stomach cancer, cause of nearly half the cancer deaths in the nation, has been developed by Dr. John W. Coltman, physicist at the Westinghouse Research Laboratories, Pittsburgh.

The new anti-cancer weapon is an "X-ray telescope." Used with standard X-ray fluoroscopic equipment now in hospitals and doctors' offices, it will give doctors a 500 times clearer view than ever before of their patients' internal organs.

One of the biggest blocks to the conquest of stomach cancer is the difficulty of diagnosing it in time for successful treatment. The new "X-ray telescope" is expected to aid in this important field.

Better diagnosis of heart ailments and other diseases may also come with the aid of the new instrument.

The X-ray telescope consists essentially of an electronic tube with a chain-like reaction going on inside it. In the chain-like reaction, the X-rays passing through the patient's body first produce light rays. These in turn create electrons within the new tube. Then with the aid of powerful electrical forces the electrons are hurled across the tube at a speed of 5,000 miles per second and strike a fluorescent screen producing the image viewed by the physician. The speed-up of the electrons is the chief factor in brightening the final image.—*Science News Letter*, May 29, 53: 339, 1948.

PLANTAR WARTS

By C. R. McLaughlin, East Grinstead, England

Condensed from the Lancet

PLANTAR warts are both common and crippling; they are also essentially curable. Yet as a result of irrational treatment they are widely regarded as intractable and worthy of the radiotherapist's most ardent efforts. These in turn often produce X-ray and radium burns of great severity, utterly disproportionate to such a simple condition. Many plantar warts are insensitive to safe doses of X-rays.

I believe that combined curettage and cauterization is the best method of attack, that it is effective in all cases where properly carried out, and that secondary repair of a resultant ulcer is hardly ever needed.

TECHNIC. A local anesthetic is preferred, since this minimizes bleeding and helps to define the layers. With a No. 11 blade the overlying horny skin is pared down until the typical bundles of the wart are clearly defined. A Volkman spoon, the exact size of the wart, is then driven into the foot at the edge of the

wart, and swept round so that the core is shelled out complete.

The hyperkeratinized collar at the neck of the cavity is trimmed with scissors, and the hole converted into a "saucer." The base, which is tough, must then be scraped until it is smooth and repeatedly touched with a diathermy needle or an electric cautery, using a fine point with a light touch. This is a most essential step, which prevents recurrence and controls bleeding.

The needle may be boldly plunged into any tiny satellite warts, but there should be no indiscriminate "frying" of the base of a large verruca. A small wick of ribbon gauze is inserted into the cavity and the area is covered with gauze and Elastoplast. The patient can usually walk immediately; and after the plug has been removed in 48 hours, there should be little discomfort. Healing is usually complete in 7 to 10 days.

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(*Lancet*, January 31, 1948, 168-169)

LKF:HBJ

AORTIC PULMONARY ANASTOMOSIS IN CONGENITAL PULMONARY STENOSIS

By W. J. Potts, M.D., and S. Gibson, M.D., Chicago

Condensed from the Journal of the American Medical Association

WE HAVE performed anastomosis between the aorta and a pulmonary artery on 45 patients, and in addition 7 patients have been explored in whom the anastomosis was not undertaken.

In 48 of the 52 patients submitted to operation, the preoperative diagnosis was the tetralogy of Fallot. This syndrome is by far the most frequent condition in which the circulation to the lungs is inadequate.

The characteristic clinical picture is that of a patient who is cyanotic, especially about the eyes, nose, mouth and tips of the fingers and toes. The eyes are suffused. The fingers and toes are clubbed. The patient is usually unhappy and irritable, and the state of nutrition is often poor. In some instances there is retardation in mental development.

Physical examination reveals the heart to be normal in size or only slightly enlarged, with a systolic murmur best heard along the left

sternal margin at about the second or third left interspace.

The electrocardiogram is characterized by pronounced axis deviation to the right. The red cell count and hemoglobin are elevated. The arterial oxygen saturation is diminished.

Roentgenologic study is perhaps the most important single feature of the examination. A 2 M. roentgenogram of the chest in the anteroposterior position almost always reveals a heart that is normal in size or only slightly enlarged. Gross cardiac enlargement is strong evidence against a diagnosis of the tetralogy of Fallot.

Roentgenologic examination shows a heart that is boot-shaped, the apex being blunt and rounded and the heart appearing to lie more or less transversely in the chest. The pulmonary fields show little vascularity. Fluoroscopic examination fails to reveal pulsations in the hilar regions, and in the left anterior oblique position the pulmonary win-

dow is abnormally clear.

In several instances our roentgenologist has pronounced the heart to be of normal size and shape. The appearance of the hilar regions must also be noted. If there is evidence of increased vascularity, it is an important sign that the lungs are receiving a sufficient amount of blood.

Fluoroscopic examination is important in determining the amount of blood flow through the pulmonary arteries. Search should be made for expansile pulsations in the hilar regions. Absence of pulsations is the rule in pulmonary stenosis. Their presence means that the flow of blood to the lungs is adequate. Fluoroscopic study of the patient in the left anterior oblique position is obligatory. In this position one is able to determine whether there is an abnormally clear area beneath the aortic arch; whether the pulmonary arteries are carrying less than the normal amount of blood. An abnormally clear pulmonary window is one of the most reliable signs of pulmonary stenosis.

Once the diagnosis of the tetralogy of Fallot has been made, it is still necessary to

determine the position of the aortic arch before operation is undertaken. In 15 to 20% of cases, the aorta descends on the right. In order to do the anastomosis one must enter the chest on the side on which the aorta lies. In our series a right aortic arch was encountered in 7 instances.

ANESTHESIA. In addition to careful selection of patients suitable for operation, skillful anesthesia is essential for operative success. The rather severe grades of anoxemia allow these patients a narrow margin of safety over which an expert anesthetist must carry them. Without the services of a well trained anesthetist, the mortality will rise appreciably. In no operation is the work of the anesthetist more important.

OPERATIVE PROCEDURE. The child is placed in a lateral position on the operating table and the chest is entered through a posterolateral incision in the left fourth interspace if the arch of the aorta curves normally to the left. In case of a right aortic arch the incision is made in a similar manner on the right side.

Identification of the right or left pulmonary artery is usu-

ally not difficult. In some cases it is small and buried in masses of small tortuous thin-walled veins and fibrous tissue. Since the loss of blood is less hazardous to these plethoric children the veins are dissected from the pulmonary artery with a fair degree of confidence. The large veins are tied with fine silk; bleeding from the tiny veins is disregarded.

We use no sponges in the chest. The blood is lavaged away from the operative site with a stream of isotonic solution of sodium chloride removed with an aspirator.

There is considerable variation in the size, length and branching of each pulmonary artery. The average size is between 5 and 8 mm. in diameter. The pulmonary artery was approximately 4 mm. in diameter in 5 patients on whom successful aortic-pulmonary anastomoses were performed. Not infrequently the pulmonary artery is embedded in dense fibrous tissue and appears very small; but after complete dissection and removal of excess adventitial tissue, it expands considerably.

The left pulmonary artery is longer than the right and usually does not break up into

branches before entering the hilus of the lung as does the right. The left pulmonary artery lies fairly near the aorta and courses in almost the same plane, whereas the right pulmonary artery lies near the inferior portion of the hilus of the lung and courses in a plane almost perpendicular to the aorta.

Doubly encircling ligatures of No. 00 oiled silk are placed around each branch of the pulmonary artery as it enters the hilus of the lung and around the pulmonary artery as far proximal as possible.

These ligatures are laid aside until one is ready for the actual anastomosis. One end of the ligature doubly encircling the distal branch of the pulmonary artery lying nearest the aortic clamp is threaded through the posterior flange of the distal portion of the clamp in one direction and through the anterior flange in the opposite direction. The other end of this same ligature is threaded through the flanges of the clamp in the opposite direction. The ends of the ligature are then drawn up snugly to appose the pulmonary artery to the aorta in the best possible position for

anastomosis and tied just tightly enough to occlude but not injure the vessels. The ligature around the proximal portion of the pulmonary artery is attached to the flanges of the other end of the clamp in the same manner.

It is imperative after the clamp is applied to the aorta and closed that a thrill be palpable in the aorta distal to the clamp, in order that sufficient blood flow to the spinal cord is assured.

The site of anastomosis to the aorta is determined by the position of the pulmonary artery. This point is usually about 2 cm. distal to the origin of the subclavian artery.

On completion of the anastomosis and release of the ligatures and clamp, there has been in each case a continuous palpable thrill over the site of the new channel, indicating that blood was flowing through.

On completion of the operation the lungs are carefully and fully expanded. In the

sixth intercostal space a small stab wound is made in the chest and a de Pezzer catheter, so cut as to leave only a flange, is pulled through the chest wall from the inside out to provide drainage. The ribs are apposed with two heavy catgut sutures encircling adjoining ribs. The periosteum is dissected from the lower margin of the rib at the point where the catgut is to be introduced so as to avoid pressure on the intercostal nerve. The muscle layers are closed with running surgical gut sutures and the skin with silk.

The child is returned to its room and placed in an oxygen tent for a day or two. The chest drain is connected with a water seal and left in the chest three days. Penicillin, 30,000 units every three hours, begun two days before operation, is continued after operation for seven to ten days routinely.

MORTALITY. Aortic pulmonary anastomosis has been performed on 45 patients, of

TABLE I

Ages	Number of Patients	Deaths	Mortality, Percentage
4 mo. to 2 yr.	10	1	10
2 to 5 yr.	19	2	10.5
5 to 13 yr.	16	1	6.3
Total	45	4	8.8

whom 4 died, a mortality of 8.8% (see Table I).

In the first 11 patients operated on there were 3 deaths; in the next 34 patients there was 1 death.

Seven operations proved to be exploratory only. One child had an unrecognized Eisenmenger complex not remediable by surgery. The other 6 were hopeless from a surgical point of view because only strandlike pulmonary arteries carrying no blood were found at operation. Three of this group of 7 failed to survive the unavoidable increased anoxemia attendant on opening the chest.

RESULTS. Of 41 patients who survived surgery, 39 have been tremendously improved; i.e., they are relieved of cyanosis, have gained weight and are able to live fairly normal lives. Two patients are improved; their cyanosis is only partially relieved and on exertion they still become somewhat cyanotic. It is only a year since the first child was operated on, so that no conclusions can be drawn as to ultimate prognosis. No child has died since discharge from the hospital. To date endocarditis has not developed postoperatively. That the anastomotic channels are re-

maining open and functioning is known from the persistence of a soft systolic and diastolic humming-top murmur heard in all children examined and from the fact that cyanosis has not recurred.

Selection of patients for operation has been on the basis of diagnosis alone. No child has been refused surgical treatment regardless of a seemingly hopeless prognosis if the preoperative diagnosis indicated a decreased flow of blood to the lungs probably remediable by surgical treatment. Six of the patients operated on were in such a severe state of anoxia that they could barely sit up in bed, and 3 had to have intermittent or continuous oxygen. Anastomosis was possible in all these children, and all survived.

Children who have had an aortic pulmonary anastomosis for pulmonary stenosis have not been restored to normal. The basic pathologic condition remains in their hearts and extra work is added by the creation of an artificial ductus arteriosus. However, the children are comfortable and happy and their mothers have been relieved of constant anxiety.

The greatest change was in

the tolerance of exercise. Before operation many children were unable to walk more than a few yards. After operation they could walk as far as their undeveloped legs would carry them. Some of the clubbing of the fingers and toes disappears during the first two weeks after operation, and the balance is gone by four to six months.

In those who have been

followed there has been in every instance some enlargement of the heart. This enlargement has not been progressive but seems to become fixed within a month or two. In 3 children the enlargement has been pronounced. No signs of heart failure have developed but we are fearful that they may appear in the relatively near future.

JPS:HBJ



IF THE BOMB IS DROPPED

Although, if an atomic bomb should fall on an American city, the population would be faced with the greatest emergency in its history, it is by no means true that the entire population would be wiped out, nor is it true that nothing could be done to help the survivors.

Following an atomic explosion the immediate requirements will be for rescue work on a large scale and treatment for fractures, contusions, lacerations, and burns. Here physicians and laymen will be on familiar ground. These injuries are the same whether produced by an atomic bomb or a block buster. Some aid also may be given to the victims of secondary radiation from radioactive dust spread by the explosion, or radioactive spray if the bomb is dropped in water. One important line of research is in the efficacy of blood transfusions, since it has been established that one of the most serious effects of radiation is damage to the bone marrow. A person tided over until normal function is resumed may be saved. A major function of the physician after such a disaster would be to act as a public health officer. Most food in the affected area would be fit for consumption, but it would all have to be surveyed before it could be eaten safely. All the water in the region would probably contain radioactive isotopes, slow poison to anyone drinking it, but research is in progress on methods of removing radioactive substances. In addition to the decontamination of food and water, physicians would be responsible for supervising the decontamination of refugees by such means as thorough bathing and complete change of clothing.—*Bulletin of the U. S. Army Medical Department*, June, 8: 411-412, 1948.

SYPHILITIC RELAPSE VERSUS REINFECTION

By I. L. Schamberg, M.D., Philadelphia, and H. P. Steiger, M.D., Charlotte

Condensed from the Journal of Venereal Disease Information

THERE is today no unanimity among syphilologists regarding the criteria for differentiation between syphilitic relapse and reinfection. From the point of view of the protection of public health, both relapse and reinfection represent failures, in that every case of infectious syphilis endangers the uninfected portion of the population.

FACTORS IN REINFECTION. The more promiscuous the patient, the greater will be his chance of reinfection. The more infectious syphilis in circulation, the more likely is each sexual act to result in reinfection. If the source of initial infection or the contacts infected by the patient are not promptly placed under treatment, renewed contact by the treated patient with any of these persons may result in reinfection.

The less effective the treatment, the larger the number of infectious relapses, and the smaller the proportion of reinfections in the total number of cases presenting new lesions. This may be considered

as adding indirectly to the number of reinfections as well as to the number of relapses, since patients with infectious relapse increase the amount of infectious syphilis present in the community at any given time.

Relapse may play a lesser role than is commonly supposed, reinfection a more important one, in the group of treatment failures after penicillin or other intensive therapy.

DIFFERENTIATION. When reinfection is suspected, the result of re-treatment with the same amount of penicillin is helpful in making the diagnosis if adequate post-treatment follow-up is carried out. Re-treatment with identical amounts of penicillin should be used more frequently as a method of differentiating relapse from reinfection.

Clinical evidence of a second infection precedes serologic evidence.

When an infectious syphilitic episode follows a small amount of therapy, relapse is the more likely cause, reinfection

tion less likely. An effective treatment schedule makes relapse less likely, and therefore suggests reinfection.

The diagnosis of relapse or of reinfection demands positive evidence, and in the absence of specific data such as those outlined above, no differentiation should be attempted. When differentiation is impossible because of inadequate data, we propose the term "infectious syphilitic episode" as a noncommittal diagnosis.

CLINICAL DATA. This study is based on the records of patients treated at the Institute for the Study of Venereal Disease of the University of Pennsylvania, and at the Baltimore Rapid Treatment Center. The lesions of all patients were darkfield-positive for *T. pallidum* on each admission to the hospital for treatment and re-treatment. Penicillin was administered intramuscularly in aqueous solution at 2- to 3-hour intervals around the clock in from 4 to 15 days.

DISCUSSION. Multiple reinfection in marital partners has been termed "ping-pong syphilis" by Schoch. The infection is batted back and forth like a ping-pong ball, from the infectious partner to the partner

who has just completed treatment. This is a phenomenon peculiar to short-term therapy. The marital partner of an individual undergoing prolonged treatment usually becomes non-infectious by virtue of time alone before the patient emerges from the chemical protection of treatment.

There are many social and psychologic elements which are conducive to reinfection. Syphilis is usually acquired in adolescence or in early adult life, at a period when sexual activity is at its peak. The patient with early syphilis, confined in a hospital for treatment, not ill and not physically active, is subjected to complete sexual abstinence for one to two weeks. Following discharge from the hospital, much self-control is needed to continue abstinence or to use mechanical prophylaxis, even if the patient has been advised regarding the danger of reinfection from a possibly infected spouse.

The incidence of reactions to penicillin increases with repeated courses.

The following epidemiologic standards for reinfection are suggested: Sexual intercourse (after treatment) with

an individual who has been examined and diagnosed as having infectious syphilis. Demonstration, by history from both patient and contact, of the presence of infectious lesions in the contact at the

time of intercourse with the patient. An incubation period of proper length between the time of sexual intercourse with the infectious contact and the reappearance of lesions in the patient.

DMP:HBJ



DYE LOCATES BRAIN TUMOR

Brain tumor detection by means of a radioactive dye that becomes concentrated in these abnormal growths and can be detected through skull and skin with a Geiger-Muller counter is the newest medical development in the use of atomic-pile by-products.

It has been tried out successfully in a dozen cases at the University of Minnesota Medical School, and by Dr. George E. Moore, senior research fellow of the U. S. Public Health Service.

It was already known that a dye called fluorescein has an affinity for tumorous tissue. To render it radioactive, Dr. Moore chemically tacked on some radioactive iodine, converting it into diiodofluorescein. Small, calculated quantities of this were injected into the veins of patients suspected of having brain tumors, who were to undergo operations.

In a short time the blood had been carried to their heads, where the counters detected the presence of the radioactive atoms. Some of the iodine was present all over the brain, but on the patients heads there were certain spots where the counters ticked much more rapidly than they did elsewhere. This was taken as indicating the possible presence of a tumor beneath that spot on the skull.

The method is not considered infallible, and is to be used only in connection with other methods of diagnosis. So used, however, it should eventually be helpful.—*Science News Letter*, June 5, 53: 357, 1948.

THE CHRONIC RUNNING EAR AND ITS CURE

By I. W. Voorhees, M.D., New York

Condensed from the Medical Record

THE results of cauterization in the treatment of the chronic running ear is sometimes amazing. The patient may come in with a dry ear after one such cauterization, the skin may promptly cover the area, and the patient may be pronounced well. Of course one may have several "bare areas," each of which will require separate attention.

Since almost all aural infections enter by way of the eustachian tube from infected nasal mucous membrane, the competent physician will clear up the sinusitis by surgery or otherwise, while treating the otitis. This scarcely needs to be emphasized.

Necrosis of bone in the mastoid cells or middle ear must be removed surgically in any case where it is found or even suspected; for one cannot expect healing if it is present. Not infrequently, the ossicles, particularly the hammer or the anvil are necrotic, and no end of drops or powder or applied electricity can be expected to remove the condition. Ossiculectomy, a re-

latively simple surgical procedure, can be done under local anesthesia, if desirable, instead of general narcosis, and it gives ample space for the otologist to apply his plan of management.

Quite a few of the patients examined to determine the cause of persisting chronic otorrhea, have had mastoidectomies, either the so-called "simple" type, or the "radical" which calls for complete reaming out of all mastoid cells and conversion of mastoid antrum and middle ear into one large cavity, with a "plastic" enlargement of the external auditory canal. Many of these seem to have been carefully operated upon, with removal of all the diseased bone, but one suspects that the postoperative care was not all that it should have been. Too often the surgeon "turns over the case" to a house surgeon or other member of the staff, "for P. O. care" and seldom sees his patient at all.

Not only is this bad psychology, but we cannot expect

anyone to take an interest in the healing of the wound if it is "not my patient." Therefore, the operator should in all cases follow through and see to it that healing is obtained with a thin skin covering all areas and with closure of the eustachian tube to keep the patient from blowing his nose through his ears.

To insure the attachment of skin to bone, gauze packing will be necessary until the adherence is well established. Discharge from the wound is sure to be present since it is part of the healing process—the exudate of serum from the blood. Bacteria are sure to be present also, since one cannot maintain a sterile field no matter how rigid his technique—bacteria laden air will see to that. However, germ life can be kept to a minimum. One should be careful to maintain *surgical cleanliness*; but he *cannot maintain a sterile field!*

Following mastoidectomy, if a discharge persists, there must be some focus or area of infection. This frequently will be due to excessive granulations ("proud flesh") on the wall of the radical cavity. This should be cauterized with chromic acid and the

detritus curetted. Beneath this there may be an area of bare bone.

When this condition is found, it does not mean that we must declare that "dead bone is present." Bare bone is not always dead bone, it is merely uncovered bone from improper healing. Skin objects to climbing over a hill, but if one can level the area off, new skin will form at the periphery and rapidly grow in toward the center, eventually covering it completely.

The procedure outlined previously is carried out as follows:

The powder at hand is called "I-B Powder." This is made by the pharmacist according to rule.

Iodine crystals	grs. V
Potassium iodide	gn. ss
Alcohol (95%)	M XV

These agents are rubbed together in a mortar until thoroughly mixed. Then boric acid powder is added to oz. 1. The mixture is spread out on waxed paper and allowed to dry, during which time the alcohol evaporates, leaving behind fine flakes of powder which can be served to the otologist in a wide-mouth bottle. The iodine content is approximately 1%.

On the table there is a small bottle of chromic acid crystals. These must be so dry that they roll around in the bottle. If exposed to air, they promptly take up moisture, form a dark, sticky fluid and are useless. This is a very valuable cauterizing agent and is indispensable for aural work. Other medicaments, such as trichloroacetic acid, have been used by this doctor but he finds the best results from chromic.

The ear is irrigated with saline or sodium water. Then it is thoroughly dried with cotton. One must enter every nook and cranny to make sure of a perfectly dry surface, otherwise results may be poor.

If there are granulations, one takes a copper applicator, a piece of small wrapping, copper wire will do, such as is used to bind stationery, then a bead of chromic is fused on the end of the wire. An alcohol lamp furnishes a sufficient flame, but the fusing is much more difficult than it sounds until one gets the knack of it. If the wire is too hot, the acid will catch fire and smoke and it is then useless.

If not hot enough the crystal will not catch on. When it

does catch, it should be passed quickly into and out of the flame, not held there. Frequently it drops off just when it seems to be about ready; then one must start all over again.

The bead should be small, not larger than a grape seed. It is applied to the granulation until one sees a whitening, then it is withdrawn.

One should be careful not to cauterize an open fistula, that is, do not invade the labyrinthine wall where it may be dehiscent due to disease or previous operation. In such cases there is usually a history of dizziness, either spontaneous or after irrigation, or even after sponging with a cotton-wound applicator.

The aural promontory may be dehiscent, or the open area may be in the region of a semicircular canal (the horizontal) near the oval window. It is doubtful whether cauterization should be used at all following the currently popular fenestration operation for the relief of progressive deafness.

One might quite readily induce a labyrinthitis with untold consequences. After cauterization, nothing should

be put into the ear save a piece of sterile cotton. Inspection should be made on the following day, or by all means on the second following day. This expectant method should be pursued for

at least one week. One then has obtained about all he can expect from the cauterization. It is, in fact, a substitute for curettement, but does not replace it entirely.

FOH:RDD



INFLUENZAL MENINGITIS

During the past few years, 21 patients with influenzal meningitis have been treated at the War Memorial Children's Hospital, London, using sulfonamides, specific antiserum and streptomycin. A few patients had been given penicillin both intrathecally and intramuscularly before admission to the hospital. Twenty of these patients were under four years of age and the other one was an eight-year old girl. Twelve made a complete recovery. The mortality rate was 43%.

Recovery from influenzal meningitis is reported from time to time by the use of the sulfonamides alone but it is generally accepted that if this is to take place, the infection must be a mild one and also that treatment must be started early in the course of the disease.

One is justified in using streptomycin alone if the infection is a mild or a moderate one as estimated by the sugar content of the spinal fluid before treatment, and also by the clinical picture. If cases are so selected the prognosis is good.

However, in the treatment of all severe cases of influenzal meningitis, those with spinal fluid sugars of 10 mg. % or less, and also in all very young infants, it would appear advisable to use all three therapeutic agents, sulfadiazine, streptomycin and the specific antiserum.—H. S. Little, M. B., *Ontario, Canadian Medical Association Journal*, May, 58: 469-473, 1948.

SBH:KOE

CHEMOTHERAPY OF CHOLERA WITH A NEW SULFONAMIDE COMPOUND ("6257")

By S. S. Bhatnagar, M.D., J. de Sa, B.Sc., F. Fernandes, M.Sc., and
P. V. Divekar, B.Sc., Bombay, India

Condensed from the *British Medical Journal*

FOR a number of years Rogers' hypertonic saline and palliative drug therapy has formed the sheet anchor for the treatment of cholera. Recently sulfaguanidine has been aligned to it, particularly through the efforts of workers in Bengal, and has given encouraging results.

A new compound "6257"—a condensation product of sulfathiazole ("cibazol") and formaldehyde—shows *in vitro* a marked bactericidal and growth-inhibiting action against *Vibrio cholerae*. When administered parenterally to mice, it offers 100% protection against septicemia resulting from intraperitoneal cholera infection.

The two outstanding properties of "6257" that are in sharp contrast to those of other sulfa derivatives are: (a) the absence of toxicity within the zone of therapeutic action, tested both in laboratory animals and in human beings; and (b) its slow absorption from a subcutaneous ~~"depot"~~ and equally slow ex-

cretion from the system, so that blood concentration can be maintained at a higher level for a longer period of time.

When patients suffering from cholera in an endemic area during the course of an epidemic were treated in their homes in villages with this drug alone, in the absence of nursing, general medical care, and any form of adjuvant treatment, the survival rate compared very favorably with that obtained by present-day recognized therapy.

The average amount of the drug given was 16 Gm. for a child, 23 Gm. for an adult female, and 25-30 Gm. for an adult male, according to the scheme shown in Table I.

The subcutaneous route was first tried, but it soon became clear that parenteral therapy did not bring about any clinical amelioration. Oral therapy was then practiced and it immediately gave gratifying results.

The retention of the drug in

1948, *British Medical Association, Tavistock Square, London, W. C. 1, England*
(*British Medical Journal*, April 17, 719-723)

the presence of frequent vomiting was achieved by substituting 0.5 Gm. tablets in place of the powder, 2 tablets being given fractionally every 10 to 15 minutes until the full dose of 6 Gm. was ingested in the course of 2 to 3 hours. In 6 cases where this practice did not succeed, on account of hyperemesis and a comatose condition, the drug was given per rectum in a 6 Gm. dose suspended in gum arabic in 50 ml. volume, high up the colon, by the employment of a long piece of rubber tubing. The beneficial effect of this measure made it possible to proceed with the second dose orally.

Experience showed that to get the best and quickest results it was essential to start with a large dose of 6 Gm. and to follow it with another large dose of 4 Gm. 4 hours later,

and then to watch carefully the progress of the case. Six to 8 hours after starting treatment purgation diminished and vomiting stopped. By the 9th hour, as a rule, the patient had passed water, although in 3 seriously ill cases it took as long as 20 to 24 hours. Nourishment in the form of barley or rice "kunji" (decoction) greatly helped to restore the kidney function.

There was distinct improvement by the end of 24 hours. Purgation was much reduced and nausea, vomiting and cramps were absent. Although the patient was weak and dehydrated, the pulse was perceptible and interest was taken in the surroundings. By the 48th hour the body was warm and dehydration reduced in proportion to fluid intake, which was insisted upon. By the morning of the 4th day

TABLE I—*Dosage of "6257" for Oral Treatment of Cholera Patients*

Day of Treatment	Daily Dosage (Gm.)		
	Children	Women	Men
1st	6	10	10
2nd	4	4	6
3rd	2	4	4
4th	1	2	2
5th	1	1	1
6th	1	1	1
7th	1	1	1

the patient was convalescent and well on the way to recovery. As a rule, patients could be said to have recovered by the end of 72 hours; nevertheless, a schedule of treatment extending over 7 days is advised.

Eighty-five cases of cholera were treated in 27 villages in the southeast of Madras Presidency during November and December. All the cases in the primary and secondary stages of infection recovered, but 3 out of 57 cases in the critical stage could not be saved.

The clinical picture was differentiated into the following 3 stages: (1) the primary stage, in which purgation was the main feature with little or no vomiting and no prostration; (2) the secondary stage, characterized by passage of rice-water stools, frequent vomiting, and prostration but no anuria; (3) the critical stage, of which anuria and

dehydration were the marked features, with a semi-comatose condition, algidity, imperceptible pulse, and body cramps.

Because of the danger of possible precipitation of a serious attack of cholera from the common practice of protective inoculation of contacts, amongst whom may be persons who are harboring the cholera vibrio or who may actually be in the incubation period of the disease, 4 Gm. of the drug, in 2 equal doses, was given morning and evening for 2 days immediately after inoculation to the contacts of treated cases in one of the villages. Although the figures are not sufficient for any conclusions to be drawn, the health authorities were struck by the freedom from infection of persons subjected to this simple therapy in comparison with those not so treated.

JPS:CHC



He who when called upon to speak a disagreeable truth, tells it boldly and has done is both bolder and milder than he who nibbles in a low voice and never ceases nibbling.—
Johann Kaspar Lavater

PRACTICAL CONSIDERATIONS IN THE MANAGEMENT OF ARTHRITIS

By Richard H. Freyberg, M.D., New York

Condensed from the Pennsylvania Medical Journal

SUCCESSFUL treatment of arthritis depends largely upon proper differentiation and correct diagnosis of the type of arthritis affecting each patient, and the early institution of management most appropriate for each type of disease.

SPECIFIC INFECTIOUS ARTHRITIS. Most of the conditions in this category are acute inflammations of several joints occurring in the course of systemic infections.

The majority of cases of gonococcal arthritis occur now because of infection with unusually resistant strains of the organism that are "fast" to sulfonamide, very rarely to penicillin, and in those persons who refuse any specific treatment. When arthritis complicates gonorrhea, it should be remembered that larger doses of penicillin are indicated, and that treatment should be continued for several days. If pus is found in affected joints, penicillin instilled locally may aid in more rapid sterilization.

If the diagnosis cannot be

made with certainty, a therapeutic trial of penicillin may be used.

Reiter's syndrome is characterized by synovitis, urethritis with mucopurulent discharge, and conjunctivitis. It occurs in young males; its cause is unknown; it is self-limited and usually persists only a few weeks. Treatment is only supportive and symptomatic.

Treatment of tuberculous arthritis should be supervised by a competent orthopedist.

ARTHRITIS OF RHEUMATIC FEVER. The present trend is toward moderation in salicylate therapy, for the experience of most observers is that massive doses are less protective of cardiac damage than they were thought to be, and that toxicity is appreciable. It has recently been shown that para-aminobenzoic acid will increase the blood concentration of salicylates in rheumatic fever, and in some cases will assist in accomplishing a better therapeutic result.

ARTHRITIS OF GOUT. In early attacks, gouty arthritis may be difficult to differentiate from other forms of acute arthritis. In such cases the therapeutic test with colchicine should be used. Diagnosis is facilitated by the administration of 0.5 mg. of this drug at hourly or two-hour intervals until abdominal cramps or diarrhea result, or until relief of the joint pain occurs (usually by the time 8 to 14 doses have been given). Other forms of arthritis do not respond to such therapy.

In stubborn cases, local roentgen therapy may be of help. Reduction to normal of body weight in obese patients is of distinct benefit. I do not favor the sharp curtailment of purine foods, and recommend only the elimination of glandular meats.

The use of 0.5 mg. of colchicine 1 to 3 times daily during intervals between attacks, in more severe gout, will tend to lessen the frequency and severity of attacks.

RHEUMATOID ARTHRITIS. No single therapeutic agent is complete or even adequate treatment for rheumatoid arthritis. Proper management requires a broad program carefully adjusted to the individual needs and appropriately

changed as the disease continues.

When their joints are at non-weight-bearing rest, patients should have daily exercises of the involved joints just as soon as pain is controlled sufficiently to permit them. Heat usually relieves pain and stiffness. Simple measures, such as warm baths for the entire body or extremities only, afford effective, inexpensive home therapy. Infra-red lamps, bakers, and sunshine are other good sources of heat.

Orthopedic measures, of course, are used to prevent deformities or to correct them once they have developed. Early cooperation of the orthopedic surgeon and the internist results in the best treatment of many patients. The internist should not await the quiescent stage of the disease before arranging for orthopedic care.

Psychic and emotional influences should be sought out and dealt with, as they may be entirely responsible for continuance or exacerbation of the disease.

The removal of localized infection ("foci"), even though it may have been an important factor in the cause, is seldom

helpful in the treatment of the arthritis. It is important chiefly to the patient's general health and to the health of the infected parts, just as in a non-rheumatic individual. The promiscuous removal of teeth, tonsils, and other parts with the hope that it might be significantly helpful to the arthritis, is not justified.

Vaccines appear to have no specific value, nor does vitamin therapy, nor the use of colloidal sulfur.

In some patients, especially those with pronounced vasomotor effects resulting in cold, moist hands and feet, nicotinic acid has definite value in relieving pain and paresthesia, and in improving peripheral circulation.

Gold therapy is beneficial in the majority of carefully selected patients with active rheumatoid arthritis. When it is effective, gold may effect in six months or less what general measures may require many years to accomplish. I believe the indications for its use are: (1) cases of progressive rheumatoid arthritis unrelieved by conservative therapy within a reasonable period; (2) when the patient or guardian understands clearly and accepts the risk; and

(3) when the physician is familiar with this form of therapy and is in a position to supervise it personally, employing necessary laboratory safeguards.

Gold helps only to arrest the inflammatory process, hence it should not be used in quiescent cases. Best results can be expected in the early active cases with little or no destructive changes; it is then that reversibility of the disease is possible.

More dependable and more uniform results will be obtained from aqueous soluble gold salts such as gold sodium thiomallate and gold thioglucose. Because of prolonged retention of gold in the body and its toxic potentialities, it is wise to give as little gold as will be effective. We have adopted the following routine: Intragluteal injections are given at weekly intervals; the first dose is 10 mg., the second 25 mg., the third and subsequent injections are 50 mg., until approximately 1000 mg. has been injected if the drug is tolerated. Then we inject 50 mg. at two-week intervals for several months, then at three-week intervals, later monthly if tolerance continues. The total amount injected and

the reduction and cessation of treatment are determined by each patient's response to treatment.

Gold toxicity should be considered if the patient complains of pruritus, dermatitis, sore mouth, metallic taste or indigestion. Weekly urinalyses for protein and sediment changes, and determination of hemoglobin and white blood-cell counts at intervals of two weeks should be insisted upon. During the past two years B.A.L. has been found to be effective against gold toxicity if it is used early. If gold therapy has been discontinued, and it is to be reinstituted, great care should be exercised because of the possibility of hypersensitivity reactions after the first few injections.

RHEUMATOID SPONDYLITIS. This disease is not helped by gold therapy, in most cases. The greatest single aid is roentgen irradiation over the back. Results are better the earlier such treatment is used.

OSTEOARTHRITIS. Treatment

should differ from that appropriate for rheumatoid arthritis chiefly because there is no inflammation in osteoarthritis. Removal of "focal infection," antibiotics, vaccines, and gold therapy have no place in the therapy of this degenerative disease. Prolonged rest is inadvisable. Reduction of excess weight, physical therapy with exercises, and analgesia should be the backbone of therapy.

In patients disabled by osteoarthritis in a major weight-bearing joint, orthopedic surgery for stabilization, fixation, or arthroplasty may be successful. Denervation operations are sometimes helpful in severely painful osteoarthritic hips. Back braces may help in spinal osteoarthritis.

The nature of the arthritis should be explained to the patient, who should have the reassurance that most persons are not disabled from it, and that it commonly is only a "nuisance" disease.

ENDOMETRIOSIS AS A CAUSE OF INTESTINAL OBSTRUCTION

By Paul McGuff, M.D., Malcolm B. Dockerty, M.D., John M. Waugh, M.D.,
and Lawrence M. Randall, M.D., Rochester, Minnesota

Condensed from Surgery, Gynecology and Obstetrics

THIS report is taken from the files of the Mayo Clinic from the years 1920-1946. Forty-eight cases with the diagnosis of endometriosis of the bowel had been made by a pathologist. In 16 of these 48 cases material had been removed to alleviate clinical symptoms and signs of intestinal obstruction. This study concerns these 16 cases.

The average age was 39.5 years. There were no colored patients in the series. Four patients were single. All of the patients had one or more symptoms from 2 months' to 18 years' duration. Four cases were suffering from complete stoppage of the bowels, 16 had symptoms of partial intestinal obstruction. In the remaining 6 cases there was progressive constipation, abdominal distention, or other similar symptoms. All 16 cases complained of cramping abdominal pain. Grossly bloody stools have been noticed by 3 patients. Infertility was frequently present, and acquired dysmenorrhea was a major symptom in

8 of the 16 cases. Dyspareunia was not listed as a major symptom. Menstrual irregularities were noted in only 4 of the cases.

Sigmoidoscopic examination was performed in 12 cases and in 9 of these positive evidence of luminal narrowing was obtained. Fifteen of the 16 lesions were treated surgically by local resection of the bowel and in one instance partial excision of the endometrioma was accomplished. When the point of obstruction was in the sigmoid or distal to it, resection was done in the majority of cases. In this group of 12 resections, colostomy was performed 8 times and cecostomy once. Resection of the lower part of the bowel plus removal of both tubes and ovaries was done in 5 cases. Panhysterectomy plus resection of the bowel was done in one case. When the point of obstruction was in the distal portion of the ileum, enterostomy plus ileal resection was done in one case. Ileal resection plus ileocecos-

tomy and removal of the remaining tube and ovary were done in one case.

The pathologic observations at the time of operation were the fact that the lesion produced obstruction by an annular or napkin-ring type of infiltration. The appearance was that of a polypoid submucosal infiltration producing obturation of the intestinal lumen. The average dimensions were 2.5 cm. in diameter. The involved tissues were nodular, firm, and fibrous without sharp delineation in the zones demarcating the edges of the infiltrations. In 9 instances the overlying mucosa was puckered in a roset fashion, in 6 there was pitting, and in one case it presented an edematous polypoid appearance.

Uterine fibromyomas had been noted at operation in 8 of the 16 cases. Six patients had extensive ovarian endometriosis with tarry cysts. Four patients had simple ovarian cysts.

In diagnosis the following points of importance should be noted: (1) it usually occurs in patients between the ages of 30-50 (2) in fairly good general health with no weight loss (3) who suffers from absolute, relative, or secondary

sterility (4) who has acquired dysmenorrhea (5) who has a history of usually a year or longer of symptoms which occur with menstrual period (6) symptoms such as severe constipation, "rectalgia" or dyschezia, dyspareunia, occasionally diarrhea, and rarely rectal bleeding (7) low deep pelvic discomfort caused by jarring of the body (8) sacral backache which runs down into the thigh (9) symptoms of intestinal obstruction such as low abdominal cramping, colicky pain, abdominal distention and obstipation or vomiting or both which have shown menstrual periodicity and become progressively more severe.

Pelvic examination most often reveals tender palpable nodules in the rectovaginal septum or the pouch of Douglas and frequently associated uterine fibroids and in many cases ovarian cysts. Pelvic examination is best made just before or during menstruation.

On sigmoid examination, positive findings will be a narrowing lumen and anterior extrarectal mass, acute angulation of the bowel and mucosal puckering and congestion. It is difficult to differentiate this from obstructing diverticulitis, but the intact mucosa

differentiates it from carcinoma.

The treatment of intestinal obstruction caused by endometriosis is surgery. In most instances, the surgical treatment will consist of bilateral oophorectomy or a panhysterectomy with or without temporary colostomy as is deemed necessary. The procedure of choice in obstruction of the ileum caused by endometriosis is ileal resection with or without preliminary enterostomy and with or without panhysterectomy as indicated by the presence and degree of associated pathologic lesions.

If the patient is a young woman who has a discrete endometrioma of the ileum or sigmoid causing intestinal obstruction, if the pelvic organs are essentially normal to the

extent that there appears to be a reasonable chance of an ensuing pregnancy, and if the absence of menorrhagia or cystic endometrium has indicated evidence of fair ovarian function, a conservative operation should be done as regards the ovaries and a radical operation done as regards the obstructed bowel. Intestinal resection without oophorectomy is indicated.

A plea is made for biopsy, frozen section, and pathologic confirmation of the clinical diagnosis in all cases of endometrioma obstructing the bowel, as carcinoma can be positively excluded only by this method. The prognosis of patients who have had intestinal obstruction caused by endometriosis is excellent and the surgical mortality rate was nil in the current series.

TAJ:CBH



RADIOACTIVE BROMINE USED IN NEW LOCAL ANESTHETIC

RADIOACTIVE bromine is used in preparing a new local anesthetic, dibromo procaine, Dr. Frank Howarth of the Victoria University of Manchester announces in the British journal, *Nature* (May 29). The radioactive bromine was of British origin, made on the cyclotrons of Liverpool and Cambridge Universities.—*Science News Letter*, June 12, 53: 376, 1948.

THE USE OF FURMETHIDE (FURFURYL-TRIMETHYLAMMONIUM IODIDE) FOR PARALYSIS OF THE BLADDER FROM POLIOMYELITIS

By Robert B. Lawson, M.D., Winston-Salem

Condensed from the Southern Medical Journal

PARALYSIS of the bladder is a relatively frequent occurrence in poliomyelitis and may be a very distressing feature of this disease. It is difficult to give any accurate figure for the incidence, but some disturbance of urination has been estimated to occur in 10-20% of recognized cases of poliomyelitis. The exact mechanism of the involvement of the bladder is not clearly understood.

In many instances the urinary difficulty is only temporary, and satisfactory voiding may follow the use of simple measures such as hot applications to the abdomen. However, frequently it is necessary to catheterize the patient one or more times, and sometimes catheterization is necessary for several weeks. Ultimately recovery of function occurs in practically all cases. Catheterization should be avoided if possible, both because of the discomfort and inconvenience of the procedure itself, and also because of the risk of infection attending repeated or continuous catheterization. The risk of infection is lessened

but not eliminated by modern methods of tidal drainage of the bladder with antiseptic solutions and by the prophylactic use of chemotherapeutic and antibiotic agents. Chronic urinary tract infection still follows repeated catheterization all too frequently.

In order to avoid catheterization we have been trying to induce contraction of the bladder by the use of parasympatheticomimetic drugs. Prostigmine, physostigmine, and mecholyl have been used, but are either ineffective or have undesirable side effects. This report is a follow-up on our experience with the use of a new parasympatheticomimetic drug, furmethide (furfuryl-trimethylammonium iodide.)

PHARMACOLOGIC EFFECTS.

Furmethide is a parasympatheticomimetic drug with particular effect on the genitourinary system. Furmethide is not destroyed as readily as mecholyl in the gastro-intestinal tract and therefore is effective when given orally in 4 to 5 times the subcutaneous dose. In man, subcutaneous doses of 3 to 5 mg. and oral

doses of 10 to 20 mg. cause stimulation of micturition and defecation, and frequently cause flushing of the skin, sweating, and a feeling of chilliness. Increased salivation and lacrimation may be noted, and a slight drop in blood pressure may occur secondary to the peripheral vasodilatation. It has been noted that furmethide has less effect on the cardiovascular system than mecholyl and less effect on the gastro-intestinal tract than doryl or prostigmine, but more effect on the bladder than any of these drugs. Patients with atony of the bladder following both urologic and non-urologic surgical procedures, and patients with bladder atony resulting from central nervous system disease, have been induced to void following the administration of this drug.

Since we have been using this drug, 30 patients have

been observed at the North Carolina Baptist Hospital and the Hickory Emergency Polio Hospital whose poliomyelitis was complicated by difficulty with urination, and who were unable to void despite hot applications to the abdomen and the other measures commonly used to encourage voiding. There was some variation in the dosage given the first patients treated, but as the study progressed, the subcutaneous dosage shown in Table 2 was used.

The smaller dosage was given first. If neither voiding nor the side effects of flushing of the skin and sweating accompanied by the subjective complaint of chilliness occurred, the larger dose was given in approximately one hour. The oral dose was 5.0 to 10.0 mg. as single doses or four times daily.

RESULTS. Excellent results were obtained in 21 of the 30

Table II
SUBCUTANEOUS DOSAGE OF FURMETHIDE

Age of Patient	Dose
0—4 years	1.25 — 2.5 mg.
5—9 years	2.0 — 3.0 mg.
10—14 years	2.5 — 5.0 mg.
15—19 years	3.0 — 5.0 mg.
over 20 years	3.0 — 5.0 — 7.0 mg.

treated patients (70%) with almost immediate emptying of the bladder.

Seventeen of these 21 patients were given furmethide by subcutaneous injection only.

Poor results were encountered with nine of the 30 treated patients (30%). That these patients represent the more severe type of paralysis of the bladder is evident when one realizes that one of them died two days after therapy without regaining bladder control, and four required repeated or continuous catheterization for from seven to 53 days.

REACTIONS. Unpleasant side effects from other parasympathetic stimulation were not common. Flushing, sweating, and the subjective complaint of feeling cold were observed in many of the patients, particularly those getting the larger doses of the drug. However, these side effects were not of enough consequence to interfere with therapy. Suprapubic pain was moderately severe in one patient who was unable to void following furmethide. Only one patient had a severe reaction which, however, cannot definitely be attributed to furmethide. This

was a 9-year-old boy who had severe spinal and bulbar involvement that required the use of a respirator. He had been given 2.5 mg. of furmethide subcutaneously at 1:30 P.M. and again at 2:15 P.M. Fifteen minutes later he was given 0.3 mg. of physostigmine. Shortly after this he began to vomit, became cyanotic and went into collapse, but gradually recovered. This reaction could well be due to an idiosyncrasy to the physostigmine, but it is possible that it was due to the furmethide.

Other workers have reported the same type of side effects we have observed. In addition increased salivation and lacrimation may be noted, and it is possible to encounter vomiting and sudden lowering of the blood pressure. In order to minimize the possibility of reaction one should always start with a small dose and increase it if not effective. One should also always have atropine at hand, since this will effectively and immediately counteract the parasympathetic effect of the furmethide.

"Furmethide" is manufactured by
Smith, Kline & French Laboratories,
Philadelphia, Pa.

ACUTE PANCREATITIS

By Constantine J. MacGuire, M.D., and Alexander J. Conte, M. D., New York

Condensed from the Annals of Surgery

THIS paper presents 30 cases of acute pancreatitis at St. Vincent's Hospital over a ten-year period. The field was limited by a specific diagnosis of sudden, acute clinical onset confirmed by a markedly elevated blood amylase, operation or autopsy.

We included all those showing marked edema of the entire gland without rupture or a rupture of the gland with fat necrosis and blood exudate. Blood chemistries were helpful in making the diagnosis.

Seventy to 200 mg. of sugar were considered normal; anything above or below these figures was abnormal. Hyperglycemia and diminished glucose tolerance occur in about 50% of acute pancreatitis and glycosuria in 10-15%. Marked elevations of blood amylase from 500 units to as high as 3,000 units are almost always found in acute cases of pancreatitis. The peak is reached usually in 12-24 hours. The absence of such an increase in serum amylase within this period excludes the diagnosis of acute pancreatitis.

The etiology of this disease is still undetermined. Trauma, vascular injury, infection and bile invasion of the pancreatic ducts are all factors. Diagnosis is made on the following symptoms: (1) shock (2) rigidity more or less confined to the upper abdomen (3) cyanosis. This condition must be differentiated from perforated ulcer. In this latter condition, the shock is usually absent and the rigidity more diffuse.

In this series there was found a predominance of male over female cases with 15 giving a previous history of gallbladder disease. The operative cases had a lower mortality than the non-operative cases. When the diagnosis of acute pancreatitis is made, operation should be deferred since it is a question whether delayed operation seriously affects the mortality.

I am convinced that in some cases cholecystostomy and drainage of the lesser sac are distinctly beneficial. Pancrea-

totomy should never be undertaken, it provides no real drainage and may lead to disastrous hemorrhage. An attempt should be made to differentiate between the

edematous type of pancreatitis, which should never be operated upon, and the necrotic type which should be operated upon after the initial shock subsides.

LKF:CBH



ENURESIS, A COMMON SENSE TREATMENT

Enuresis is not a disease in itself but is nearly always a symptom of a psychologic disturbance. I have found this to be true in over 95% of my cases.

The treatment consists of reeducating the parents and the child. I have found the following five specific suggestions of greater value in controlling enuresis than any of the many and varied types of treatment that have been or are being used.

1. Do not talk about bed wetting at any time in the child's presence.

2. Do not waken the child at night.

3. Do not change the bed linens or pajamas, except when making the routine changes of linens for the rest of the family. This may be once or twice weekly. Dry the wet linens and clothes and replace them. The child will tire of the smelly odors and rough clothes when he discovers that he is the only one that is suffering from this poor habit. This is an incentive to keep dry.

4. Limit the 24 hour intake of all fluids.

5. Medication is of questionable value.—*Norman W. Clein, M.D., Seattle, Northwestern Medicine, April, 47: 281-282, 1948.*

SBH:KOE



We lay aside letters never to read them again, and at last we destroy them out of discretion, and so disappears the most beautiful, the most immediate breath of life, irrecoverably for ourselves and for others.—*Goethe*

PANCREATIC CYSTS

By Daniel J. Pessagno, M.D. and John F. Schaefer, M.D., Baltimore

Condensed from the Southern Medical Journal

Two cases are here reported of a true cyst and a pseudocyst of the pancreas. The literature has been reviewed and a total of 859 cysts have been reported to date.

The cyst may originate wholly within the pancreas, as a proliferative cyst; as a degenerative cyst, resulting from softening and cystic degeneration due to necrosis; as a retention cyst, from mechanical blockage of the pancreatic duct; as an echinococcus cyst; as a part of congenital cystic disease, associated with cystic disease of the liver and kidneys; as an hydatid cyst; or as a cystic dermoid. These are all true cysts of the pancreas.

Pseudocysts never originate in the substance of the gland, and are generally caused by trauma to the upper abdomen.

DIAGNOSIS. Symptoms are usually vague epigastric pain, occasional vomiting, and swelling of the abdomen. Microscopic examination of the feces shows undigested muscle fibers and excessive fat. X-ray may provide a helpful sign in demonstrating an enlarged duodenal curve.

TREATMENT

EXCISION. We feel that excision should not be practiced routinely but should be restricted to papillary cystadenomas and small cysts with narrow pedicles, particularly those arising in the tail of the pancreas.

INTERNAL DRAINAGE. This is accomplished by anastomosis of the cyst with a hollow viscus and should be used where excision or marsupialization is impossible. We cannot regard the operation as a curative since there is no provision for obliteration of the cystic cavity.

MARSUPIALIZATION. This involves evacuation and drainage of the cyst wall to the parietal peritoneum. It may be a one-or two-stage operation. In the first stage the cyst is anchored to the abdominal wall and opened immediately. In the latter procedure, incision is delayed for 24 to 48 hours.

Pancreatic enzymes are notorious poisons for skin. We liberally coat the edges of the skin adjacent to the cyst with aluminum paste. The results have been excellent.

In order to prevent recur-

rences, the obliteration of the cystic cavity must occur. This can be accomplished by the application of 20% silver nitrate once daily to the entire length of the marsupialized

cyst. Within 8-12 days cessation of drainage from the cyst and fixation of the walls in apposition for fibrosis and obliteration should occur.

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TAJ:CBH



END OF MALARIA?

Malaria, the tropical disease that took the greatest toll among the Armed Services during the war, and which recurred in many patients after treatment, is about to be licked. This is according to five outstanding Malariologists who told about the new malaria drugs recently at the meeting of the Fourth International Congress on Tropical Medicine.

During the early part of the war when the supply of quinine was getting less and less it was urgent to get a synthetic drug to take its place and fight this disease. Scientists went to work. Many drugs were developed only to be discarded as they either did not affect the disease or they were too toxic to the patient. Out of these numerous drugs came six that gave hope for a cure; Pentaquine, Isopentaquine, Paludrine, Chloroquine, Sontoquine and Pamaquine.

Then it was necessary to actually use these drugs and to study their effects on man. Doctors went to work on malaria in the Armed Forces while civilian doctors worked in malaria-infested areas in other parts of the world. At this meeting eight of these doctors pooled their results, and all agree that each of these drugs has withstood the test and are optimistic about the future cure of malaria. Although some of these drugs cannot be bought on the open market, many are available for use in hospitals or to be prescribed under the direction of a physician.—*Department of the Army, Technical Information Office, Office of the Surgeon General, Washington, D. C.*

THE PRACTICAL IMPORTANCE OF MODERN CONCEPTS OF PSYCHOSOMATIC RELATIONS

By Alfred O. Ludwig, M.D., Boston

Condensed from the New England Journal of Medicine

THE term psychosomatic in its present-day usage serves commonly to designate a group of diseases with organic changes in which emotion is thought to play an important etiologic role.

The recent investigations in this field are an approach toward incorporating into the structure of medical science what used to be known as the art of medicine. Everyone is familiar with the consummate skill of the experienced general practitioner, which combined a detailed personal knowledge of the patient, his past life and his family with sound medical understanding as well as a great intuitive grasp of emotional problems and a warm friendly support. Striking therapeutic success and an excellent doctor-patient relation were often the result. However, these efforts could never be more than intuitive or empirical, nor could they be made predictable or manageable until they were subjected to careful psychiatric investigation.

To consider the patient as a person one must first accept the reality of emotional reactions. For example, one should not forget that nausea and vomiting may be caused entirely by strong emotions as well as by structural changes or by irritating substances in the stomach. Somewhat more difficult to visualize but now well established is the concept that emotion can eventually produce structural changes in the body. Once this is admitted a far broader view of the nature of disease must follow.

One must make certain that the patient's feelings, his personal relationships, his life situation and his reaction to his environment are all subjected to the same painstaking scrutiny as his physical body and its symptoms. His emotions should be examined with the same objectivity as his organs, and here it is well to caution that moral judgment regarding behavior has no place in medical treatment. Irritating or annoying actions

can be as much a part of a pathologic picture as organic disease and should receive from the doctor the same dispassionate appraisal, never unreasoning retaliation.

The first group of disorders of importance to the practicing physician are neuroses that manifest themselves by somatic disturbances, such as gastro-intestinal, cardiovascular and skeletal symptoms.

It is highly important that such patients be handled properly from the outset. This implies that one take a careful medical history, which should include at least an attempt to outline the gross personality traits as they pertain to the illness. An adequate physical examination should follow, with special attention to the part of the body that is the seat of the complaint. Necessary laboratory work should be done when indicated.

At this point the physician can make or break the successful treatment of the case. If no significant organic changes are demonstrated, the patient should be so informed and should then be instructed, in the simplest words, concerning the mechanism of production of psychogenic symptoms. All explanations should

be clear and concise, and the patient should be encouraged to ask questions to allay any fears that he may have.

If the disease is purely psychogenic, treatment should not be organic. Every neurotic person seeks to evade responsibility by falling back upon an organic diagnosis. It is more comfortable and more acceptable to explain symptoms as due to alien infections or other external causes than to accept personal responsibility as one must if one's own emotions, be they conscious or unconscious, are at fault.

Unnecessary surgical procedures are especially harmful. In the presence of severe neurosis, the patient may often unconsciously seek such treatment in part as punishment for severe guilt feelings.

Another important category of illness is made up of disorders in which recent studies have shown that emotional influences acting over longer or shorter periods result at first in disturbed physiology and eventually in structural change. Peptic ulcer is the simplest example. Ulcerative colitis is another serious disorder in which emotional factors play an important role.

Other disturbances in this group are the allergic illnesses such as asthma, hay fever and urticaria, certain skin diseases, such as eczema and neurodermatitis, migraine, possibly certain cases of epilepsy; hypertension and rheumatoid arthritis.

Addiction to alcohol and to drugs has long been considered a purely psychiatric disorder. Another addiction—namely, that to food,—which leads to simple exogenous obesity and which may result in the complications that are secondary to pathologic accumulations of fat, has been shown to have important psychologic aspects.

There seems to be emerging slowly a clearer understanding of the personality structure of persons who become ill in this way or who react with their bodies to certain emotional crises. These patients, usually unbeknown to themselves or others, appear to have remained or to have been pushed back to extraordinarily primitive and early stages of emotional behavior. They manifest an extreme degree of dependence upon certain key figures around them. This dependence on closer survey turns out to be so ex-

aggerated that it suggests an almost symbiotic relationship. The loss of these key persons by death or by separation produces catastrophic helplessness and is often followed by organic illness.

This extreme degree of insecurity and need for the support of others is manifested in various ways. It may be displayed openly as a childish, clinging, extremely demanding and grasping attitude with marked impatience and intolerance to any discomfort. On the other hand it may be completely hidden. In this event only the defense against the underlying weakness is seen in the form of an exaggerated false front of self-reliance and independence. The inadequacy of this defense becomes apparent when it collapses before any event that forces the patient into a dependent attitude. Apparently, many of these persons are extraordinarily dependent on the constant presence of outside help for the maintenance of security and psychologic integrity.

Coupled with this extreme degree of dependence is an exaggerated intensity of emotion. In consequence, these patients become extremely controlled outwardly and are

usually considered to be cold and unfeeling. They fear any loss of control because it may result in an explosive and overwhelming outburst.

Contact is difficult and they tend to live in isolation. Personal relations are difficult except on a superficial level. Their greatest fear is that of complete helplessness. Organic illness brings some recompense in that it is accompanied by the security secondary to attention and medical care. However, so great is the fear of relying on others, that patients may resist treatment.

Eating is one primitive method of solving difficulties employed by these patients. For them, eating can assuage a sense of loss, of depression or of deprivation, and on the other hand it may serve to relieve anger or rage. Oral drug addiction is not rare.

These patients appear to have extremely loosely organized personalities. Responses are primitive and of total intensity. In this primitive stage such strong emotions are expressed by physiologic changes rather than by the more mature methods of physical activity, the outward expression of feeling or by verbalization.

What are the implications for treatment? To influence such patients, it is essential to establish contact with them. This requires a very warm, friendly and giving type of approach, such as is usual and customary for the practitioner of medicine.

It will be clear that such vulnerable persons will be suspicious and distrustful, and therefore it is vital that an attitude of extreme honesty be maintained at all times. If mistakes are made, they must be freely acknowledged. Strong support and reassurance are essential, and it is often necessary to infuse one's own optimism, confidence and strength of will into the patient. This he accepts by identification. The doctor may have to put himself temporarily into the role of the lost key figures or seek to manipulate the environment so that they are replaced.

One must never try to push these patients too hard or too fast. Pressure is felt as rejection and hostility and either is strongly resented or produces exacerbation. One must avoid becoming annoyed by demanding and grasping attitudes. Often, these persons

deliberately try one's patience by overt hostility. It is best to inquire into the reasons for such behavior, before retaliating. Many of them suspect that the entire world is hostile and cannot believe that anyone has any good intentions. The best results are obtained by gentle suggestion.

Vocational guidance, with retraining when indicated by the limitations of illness, deserves a larger place in organized medicine.

A word regarding the role of compensation and pension in disease is indicated. The justice and humanity of the principle of compensation for injury or illness sustained in industry or war are freely conceded, but a much greater

understanding of the insidious and highly crippling effects of a continuing pension must become more widespread among the medical profession. Everyone has seen patients pushed into and maintained in chronic invalidism through the payment of weekly or monthly pensions. Such behavior is neither conscious nor deliberate but represents a secondary neurotic dependency that is nurtured by the continued pension. From the point of view of rehabilitation, continuing compensation is not humane but hampers recovery. A review of present attitudes toward these practices is necessary.

BBH:KOE



FOR SURVIVAL

Because of the increased power to kill that has been developed in the last five years conditions of survival are centuries removed from even ten years ago according to Dr. Brock Chisholm, Executive Secretary of the World Health Organization Interim Commission. "What has made the world a new kind of world is that warfare is obsolete as an instrument of human relations," he said, adding that "only a very small percentage of any major nation could hope to survive another world war." He declared that if there is to be a future for the human race "all people must carry their share of the responsibility of the race to its descendants."—*World Health Organization, News Letter*, 11: May 15, 1948.

CONGENITAL MEGACOLON

By E. D. Telford, M.D., and H. A. Haxton, M.D., Manchester, England

Condensed from the British Medical Journal

IN the milder cases of megacolon in childhood it may be that diet and medical measures will secure adequate action of the bowel, but where diet and drugs alike fail, the need for surgical treatment is clear. Without such treatment the trouble tends to become worse, and in the more severe forms, death is likely to occur before the age of 20.

Sympathectomy and spinal anesthesia have been used for many years in the treatment of congenital megacolon, with good results. The reports hitherto submitted are open to criticism, however, in that the follow-up period has been too short. We have therefore re-examined those patients who were treated by spinal anesthesia in the Manchester Royal Infirmary between 1938 and 1945. The total number of patients treated during this period is 17; of these we were able to study 12. The youngest was aged 6 months and the oldest 13 years when treated.

TECHNIC. The effects of the spinal anesthetic must reach as high as the anterior roots

of T5 in order to abolish all activity in the splanchnic nerves. To make sure of this it is usual to allow the level of the anesthesia to rise to the third thoracic segment or even higher, until tingling is felt on the inner side of the hand (T1). The state of relaxation of the rectus abdominis is a good guide to the paralysis of the anterior roots; the muscle should be flaccid throughout so that the epigastrium bulges when the child cries or coughs.

After-treatment is important, in the form of liquid petrolatum $\frac{1}{2}$ ounce daily. Enemata are given every other day during the first week, twice during the second week, once during the third, and then are discontinued. The petrolatum is continued as long as may seem necessary.

RESULTS. The result has been classified as "good" in cases where the bowel action has become normal, "fair" when a considerable improvement has resulted, but medicine is still required to maintain regular

action, and "failed" when no worthwhile improvement has been seen. The 12 cases are grouped as follows: good 8, fair 2, failed 2.

These cases were of a severe type. In the successful cases the parents have noticed that the children became brighter and much more energetic. The improvement in growth, in development, and in complexion is striking. Four of the 8 cases were treated not less than 9 years before; over this long period their bowel action has remained normal.

Lumbar sympathectomy was done in 3 of the 4 unsatisfactory cases from 1 to 2 years after the spinal anesthesia. In

only one of these, however, did any further improvement result. It seems likely that cases in which a spinal anesthetic has failed to produce improvement will also prove refractory to sympathectomy.

We believe that good results are more likely in the younger patients, and that 12 years of age would be the upper limit for success. The method is useless in adults.

There may be a delay of several weeks after the administration of the spinal anesthetic before any improvement is manifest. Later follow-up is likely to reveal a great improvement, of which there was no sign during the stay in hospital.

JPS:HBJ



CHILDBIRTH MORTALITY RATES

The risk of dying during childbirth decreased during 1946, according to figures of the National Office of Vital Statistics, released today by Oscar R. Ewing, Federal Security Administrator. In that year, 5,153 women died in the United States from causes related to pregnancy and childbirth, representing a maternal mortality rate of 1.6 deaths per 1,000 live births, as compared with 5,668 deaths and a rate of 2.1 in 1945. The decrease in the maternal mortality rate between these years was 24%.—*Release, Federal Security Agency, Washington 25, D. C.*

RINGWORM OF THE SCALP

By D. M. Ruch, M. D., Milwaukee

Condensed from the Wisconsin Medical Journal

THIS study comprises a review of the pertinent findings in 100 cases of tinea capitis seen at the Milwaukee Children's Hospital out-patient department between April 1946 and April 1947.

CLINICAL TYPES. 1. The gray scaly patch type is caused by *Microsporon audouinii*. Single or multiple areas of partial alopecia are present on the scalp, with lusterless, short, stubby hairs. A fine gray scale is usually present in the affected areas, and little or no inflammation is seen. This type of ringworm is of human origin and is highly infectious and contagious, but does not infect animals. It is transmitted by direct contact, or by contact with combs, clippers, caps, chairs, pillows, head rests, and the like. The infection is insidious and may persist for many months or years. Occasionally *M. lanosum* will cause this superficial type of infection.

2. The kerion type of tinea capitis is caused by *M. lanosum* and by *Trichophyton gypsum*. The latter organism is the

most common cause of kerion in rural areas, and in cases affecting the adult scalp. This is an active, often highly inflammatory type of infection with lesions varying from well circumscribed single or multiple areas of redness, crusting and pustulation, to areas of abscess formation and carbuncle-like granulomas. Infected cats, dogs, and cattle can be the source and focus for spreading the infection among children. It is also transmissible from child to child. The duration is usually several weeks or months, and in this type there is a tendency to spontaneous cure.

DIFFERENTIAL DIAGNOSIS. The Wood lamp, microscopic examination and culture of infected hairs, are means of diagnosis. It must be remembered that hair infected by *Trichophyton gypsum* does not fluoresce.

In differential diagnosis the examiner must consider such entities as alopecia areata, seborrheic eczema, psoriasis, pyoderma, and folliculitis. The kind of fluorescence due

to ointments which may have been applied is different, in that it gives a blue-white color and is ill-defined and smeared rather than sharply demarcated. The greasy hairs fluoresce throughout their entire length rather than as stubs.

INCIDENCE. We found the age group with the highest incidence to be that from 7 to 10 years of age, as 67% of our patients fell within this age limit. In 17 families there were 2 members with tinea capitis, and in one family 3 children were infected.

There were 97 cases of the gray scaly patch type, and 3 of the kerion type. The occiput was involved more often than was any other part of the scalp.

TREATMENT. We were able to follow adequately 91 of the 100 cases. The data concerning treatment are based on these.

The 3 patients with the kerion type were treated locally with wet dressings of 1:10,000 potassium permanganate solution, applied 2 or 3 times a day; fungicides were applied locally after the wet dressings. All 3 patients were cured in from 3 weeks to 2 months. In this type of infection X-ray epilation is not necessary because the inflam-

mation is often so intense that spontaneous epilation occurs.

The 88 patients with the gray scaly patch type were treated as follows: X-ray epilation was used in 61 of the cases, manual epilation in 8, and local therapy alone in 19. Of the 61 in the first group, 40 were first subjected to local therapy consisting of fungicidal wet dressings and ointments. These local measures were ineffective, and so the remaining 21 were epilated by X-ray and received no preceding topical therapy.

Patients with this type of infection who had single or only a few small areas from 1 to 2 cm. in diameter were epilated manually under the Wood light. This was done in 8 cases, and proved to be effective only in 4.

If errors in X-ray epilation are made, permanent loss of hair, and atrophy of the scalp may result. Thus this procedure should be carried out only by those thoroughly trained and experienced in it. The entire scalp should be epilated. After epilation is completed, a fungicidal local application should be used for several weeks to prevent reinfection.

RESULTS. Of the 91 cases of

tinea capitis treated, 67 were cured, 9 were improved, and 15 showed no improvement. We feel that X-ray or manual epilation is the most effective

treatment for the gray scaly patch type. The kerion type responds well to local applications, and should not be subjected to X-ray epilation.

DMP:HBJ



IMPROVING RICE DIETS

Whatever the kind of rice eaten, typical rice diets are defective because they contain too much rice. The replacement of highly-milled rice by rice in other forms may prevent thiamine deficiency and help correct other deficiencies, but it will not make a diet in which rice supplies over 70% of total calories a good diet. More than this is needed. A greater consumption of foods of animal origin, milk, meat, eggs and fish, would effectively improve nutrition in rice-eating countries. Rice-eating areas are in general areas of dense population. Available land must be devoted almost entirely to the production of high yielding crops, notably rice, in order to provide sufficient calories to prevent hunger. The diversion of land now producing food to fodder crops, or the feeding of vegetable foods suitable for human consumption to animals, would mean a reduction in the calories available for human beings. Apart from the question of production, rice-eaters are in general too poor to buy animal products in sufficient quantities. A large increase in supplies of milk, meat and eggs, could be brought about only by a general rise in the standard of living and purchasing power, associated with far reaching developments in agriculture and industry.—*Read before the Fourth International Congress on Tropical Medicine and Malaria, Washington, D. C., May 10-18, 1948.*

RINGWORM OF THE SCALP IN OTTAWA PUBLIC SCHOOL CHILDREN—1946-1947

By L. P. MacHaffie, M.D., S. F. Penny, M.D., and E. C. Beck, Ph.D., Ottawa

Condensed from the Canadian Journal of Public Health

RINGWORM of the scalp was unknown among Ottawa's 9,000 public school pupils from 1931 to 1944. Three cases were discovered during 1944, 18 during 1945, 88 during 1946, and 71 cases in 1947 (to November 30th). Coinciding with this increase there was a rapidly increasing prevalence of ringworm of the skin.

The specimens collected for laboratory examinations were mainly hairs from the scalp which under the Wood's lamp showed the characteristic greenish fluorescence. Since it is known that in early infections there may be no apparent evidence of ringworm, the Wood's lamp was employed because it revealed the presence of infected hairs; these were removed by forceps for both microscopic and cultural examinations.

In the microscopic examination a few hairs were placed in a drop of lactophenol (equal parts of lactic acid, glycerine, phenol, and distilled water) to be studied. As a culture medium, we found Sa-

bouraud's maltose agar to be most satisfactory; the cultures were grown at room temperature.

RESULTS OF LABORATORY EXAMINATIONS. During the period November 1946 to May 1947, a total of 84 specimens, 78 of hair and 6 of skin scrapings, were examined for the presence of ringworm fungi. Of these, 59 were positive by laboratory examination and 25 were negative. Of the 84 total specimens, 67 were examined both microscopically and by cultivation; the remaining 17 specimens were inadequate for both examinations and will be dealt with separately. Of the 67 specimens, 37 showed the presence of *Microsporon audouini* microscopically and by culture. Fifteen of the 67 were negative by both examinations. Six of the 67 revealed by microscopic examination the typical mosaic of microsporon spores around the hair and were negative by culture. Nine of the 67 were negative upon microscopic examination

but by cultural examination *M. audouini* was grown.

Both examinations should be carried out when the specimen is adequate because occasionally a culture becomes overgrown with common moulds, rendering that test unsatisfactory. When bacteria alone contaminate the culture, *Microsporon* usually pushes out beyond the contamination and can then be isolated in pure form.

Of the specimens obviously infected with the ringworm fungus, 13% were missed on microscopic examination. Of the 17 specimens subjected to only one examination, that of cultivation on Sabouraud's medium, 7 were positive and 10 were negative. The group of 15 specimens which were negative by both tests included specimens from suspicious or doubtful cases of ringworm, specimens as checks on cured or treated cases, and in some instances specimens from contacts in a family.

The fungus was isolated from hairs removed from the clippers of one barber.

In our study, *M. audouini* was the only fungus isolated during the investigation of this outbreak of ringworm of

the scalp. Where cultures were grown from skin scrapings, they also were found to be *M. audouini*.

CONTROL MEASURES. Wood's lamps were supplied to all schools, and nurses were trained to use them. A special nurse was employed who devoted her whole time to dark-room surveys. All pupils were surveyed frequently. Many of the 88 cases had previously been missed by naked-eye inspections.

A mass meeting of 170 barbers was addressed and the use of the Wood's lamp demonstrated. Barbers were furnished with printed instructions on how to rid their equipment of fungus contamination. They were urged to procure lamps for themselves—and many did—in order to prevent further infection. A 10% Lysol solution, applied to instruments for 2 minutes, was found to be the best fungicide.

Informative bulletins were placed in all hospitals, warning all city doctors of the prevalence of the disease and outlining means of control, methods of diagnosis, and recommended treatment.

Pupils were permitted to attend school if they wore

satisfactory protective caps which were made in school and supplied free. The cap, a sort of tight-fitting parka, had to be worn at all times, and pupils had to be under the treatment of a physician.

Parents were furnished with printed instructions, and homes were visited frequently.

Control measures have proved to be fairly effective: the epidemic is definitely on the wane.

DMP:HBJ



THE DIAGNOSIS OF MITRAL INSUFFICIENCY IN CHILDREN

The clinical significance of an apical systolic murmur in rheumatic children is often uncertain. In a study of 144 rheumatic children, with a diagnosis of mitral insufficiency based on a loud blowing apical systolic murmur in the absence of cardiac enlargement, Knuttner and Markowitz compared their prognosis with that of 171 children classified as having potential and possible rheumatic heart disease after an average follow-up period of eight years. Of the cases of mitral insufficiency, 48% developed organic heart disease. Of these, 14% died as a result of their rheumatic infection or bacterial endocarditis. Of the cases of potential and possible rheumatic heart disease, 13% developed evidence of organic heart disease. None of the children in this group died. The striking difference between the two groups in the progression of the disease and the mortality rate indicates that the intensity of the murmur is of prognostic significance. The diagnosis of mitral insufficiency, based on a loud blowing apical systolic murmur, is justified in children, even in the absence of demonstrable cardiac enlargement.—*Ann G. Kuttner, M.D., and Milton Markowitz, M.D., American Heart Journal, May, 35: 718-726, 1948.*

LBL:LBL

"MYANESIN" AS A RELAXANT IN CHILDREN

By W. H. Armstrong Davison, M.D., Newcastle, England

Condensed from the British Medical Journal

THE drug $\alpha : \beta$: dihydroxy- γ -(2-methylphenoxy)-propane (myanesin, British Drug Houses Limited) is obtainable in 10-ml. ampoules of a 10% solution. Its use as a relaxant in anesthesia was first described by Mallinson (1947), and its pharmacology has been discussed by Berger and Bradley (1947). Unlike curare, myanesin does not appear to interfere with voluntary movements, but only with spinal reflexes, and therefore, presumably, with muscle tone. It may be suggested that its site of action is the internuncial neurones, which might account for the fact that respiration is not inhibited for long periods. Toxicity is low.

Myanesin was administered to 44 children between the ages of 24 days and 4½ years, with satisfactory results. In all cases maintenance of anesthesia was with open ether, induction being with ether, nitrous oxide, or ethyl chloride. There were 16 cases of intussusception, 16 of pyloric stenosis, and 12 of appendicitis, with or without peritonitis.

Anesthesia was maintained in first plane, third stage; in cases lasting up to 20 minutes it was found that one dose of myanesin sufficed, and that no more ether was required after the peritoneum had been opened. Recovery was extremely rapid, and the post-operative condition was always better than would have been expected had other means been employed. Respiratory depression lasting 15 to 30 seconds occurred in one-third of the cases; in one case respirations were completely inhibited for nearly half a minute. After the initial depression the tidal air assumed normal proportions. There were no obvious changes in pulse rate, although blood pressures were not taken. There were no deaths during operation, but two occurred after operation, in neither case ascribable to myanesin. Relaxation came on rapidly and was good for 10 to 25 minutes after injection, its extent being sometimes obscured by pre-existing

distension of the bowel. Clinically, no effect upon bowel movements or tone could be seen.

The injection of myanesin was made into the intravenous drip, if one were set up, or into the longitudinal sinus at the posterior angle of the anterior fontanelle, for at this point the sinus is wider than in front and the approaching edges of bone direct the needle automatically into the vein. Blood is aspirated before injection, but it is unlikely that intrathecal injection would be dangerous. The dose

was in the order of 2 ml. per stone (6.35 kg.) of body weight.

The 44 cases to which myanesin was administered were unselected. The results achieved seem to indicate that relaxation in infants can be obtained with greater ease and safety with myanesin than with any method previously employed. The lack of anxiety which was felt during operation, even about patients gravely ill, is a fair measure of the success obtained with this drug.

SBH:KOE



PENICILLIN ACTION APPEARS TO PRODUCE ELECTRIC FIELD

PENICILLIN'S action against bacteria appears to create a charged electrical field in the area where it is going on.

Drs. Jean Dufrenoy and Robertson Pratt, of the University of California Medical Center in San Francisco, produce evidence that in the zone where the drug is inhibiting bacterial growth there is a positive charge, with a negative charge in the area where the growth-rate is enhanced. They have communicated their findings to the editor of the British scientific journal, *Nature* (May 29).—*Science News Letter*, June 12, 53:371, 1948.

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THE ROLE OF HORMONES IN THE TREATMENT OF OBESITY

By M. M. Kunde, Ph.D., M.D., Chicago

Condensed from the Annals of Internal Medicine

THIS report is based on the study of a group of patients with obesity, totaling 50 in number and varying in age from 34 months to 55 years. All had been referred for endocrine treatment either because of debilitating overweight, presumably due to some vague endocrinopathy, or because of some specific endocrine dysfunction with which the overweight was associated. Some of these were treated for obesity for the first time. Others had previously attempted to reduce on a carefully calculated low caloric diet and could not adjust to such a regime. A small number had previously taken hormone products with failure to lose weight. The group is thus heterogeneous, consisting of some patients treated for obesity for the first time, and others retreated after endocrine therapy and carefully calculated low caloric diets had failed.

Some of these obese patients presented history or signs or symptoms of

specific glandular dysfunction which had been tentatively diagnosed in the general medical clinic. This diagnosis was definitely established, or ruled out, in our endocrine clinic by laboratory investigations, physical examinations, and more detailed history. These specific endocrinopathies were mostly hypofunction of the gonads; and as they did not seem to impair the health or well being of the patient at the time, they were disregarded. No patient with diabetes or severe hypothyroidism was included in this study. Weight reduction on these patients was handled as any other major medical problem and the patient reported to the physician at each clinic visit.

PROCEDURE OF TREATMENT. Before the initiation of treatment for obesity, the patient undergoes the physical examination necessary in special endocrine cases, and a careful medical history is taken with special reference to inherent and acquired endocrine dis-

turbance. Laboratory tests made at the beginning (and whenever possible, at the end of the period of weight loss) include basal metabolism, glucose tolerance, urine analysis, complete blood count, blood cholesterol, and blood calcium and phosphorus. Roentgen-rays of the sella turcica and epiphyses are requested whenever other findings suggest that these might be helpful or essential.

Hormonal products are not prescribed or used during the entire period of weight reduction. No calculated caloric diet is suggested; consequently the services and advice of dietitians need not be employed. But emphasis is placed upon the need for re-education of the appetite. These overweight patients are informed that there are no known hormones that can cure the obesity, but that it can be satisfactorily reduced by strict adherence to a prescribed diet. They are warned that if the previous faulty food habits are again indulged in, increase in weight will recur.

A list of food substances chosen to constitute a high protein, low fat, low carbohydrate diet, with no calculation

of caloric values is then prescribed. Tea, coffee, and salt habits are discussed and not interfered with unless there is a special contraindication or unless the amounts used have been excessive. To insure against certain mineral and vitamin deficiencies, calcium lactate, vitamin D and brewer's yeast are included as a fixed part of their daily dietary intake.

DISCUSSION. A few of these patients had given a history of increased appetite with resultant excessive food intake. But most of them had acquired a taste for carbohydrates and indulged in them in excess of the amount which their body could metabolize without excessive deposition of fat. The fundamental cause of their obesity seems to be due to some unknown constitutional discrepancy in their metabolism. This makes it necessary for them to exist on a dietary containing a greater proportion of protein and less carbohydrate and fat than is required for the individual who does not become excessively obese on the average American dietary. Be that as it may, the fact remains that no endocrine product known to therapeutics at this time is

necessary or helpful in reducing the body weight of obese patients.

Thyroid hormones should be administered solely for the correction of a specific hypothyroidism. When this is properly accomplished, the obesity will take care of itself or it should be managed by dietary regulation. The use of thyroid extract, in patients with adiposity but with no hypothyroidism, solely for the purpose of attempting to effect weight loss by stimulating metabolism, is fraught with disappointment and failure. Such overweight patients soon manifest the symptoms of severe induced hyperthyroidism with little or no weight loss.

Most patients with an initial reduced utilization of glu-

cose manifest a tendency toward a more normal glucose tolerance curve after following this dietary treatment for four to six months, during which time there has been a reduction in body weight of 40 to 60 pounds.

Hypertension was present as a complicating factor in a few of these patients before the onset of the weight reduction regime. The highest systolic pressure was 220 mm. of mercury. Blood pressure levels were checked from time to time to determine the effect of the high protein intake on this mechanism. There followed an appreciable reduction in both systolic and diastolic levels after the body weight had been reduced by 30 to 60 pounds.

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CLB:HBJ



HAIR OF THE DOG

PELLAGRA, hard-times disease among cornmeal-eating peoples, may some day be combatted with the very grain that is now blamed as its chief cause. Possibility of producing strains of hybrid corn with high content of niacin, is pointed out in *Plant Physiology* (April) by Dr. Frederick D. Richey of the U. S. Department of Agriculture, who works at the Tennessee Agricultural Experiment Station in Knoxville, and Dr. Ray F. Dawson of Columbia University.—*Science News Letter*, July 10, 54: 22, 1948.

CARCINOMA OF THE STOMACH

By Claude E. Welch, M.D. and Arthur W. Allen, M.D., Boston

Condensed from the New England Journal of Medicine

A STUDY of all the patients with carcinoma of the stomach admitted to the Massachusetts General Hospital during the 10-year period 1937-1946 shows that the delay before treatment has remained unchanged averaging five months. It was anticipated that the delay would show a significant decrease in this last decade. However, this was not the case.

Once the patient has been admitted to the hospital, he is studied completely, including endoscopy, peritoneoscopy, and Papanicolaou's stain from gastric washings. With cancer of the stomach, the smears will be positive in only about 2/3 of the cases.

The well known fact that gastric cancer frequently simulates benign gastric ulcer needs re-emphasis. Immediate surgery is recommended in patients with a gastric ulceration under any one of the following conditions: if the ulcer is of short duration and the patient is over 50 years of age; if the ulcer is over 2.5 cm. in diameter; if there is no

free hydrochloric acid in the stomach; if the ulcer is in the greater curvature or on the prepyloric region; and if the ulcer is chronic or recurrent and on the lesser curvature.

Hospital observation and medical treatment for one month are advised if the lesion is acute and in a young patient, under 1 cm. in diameter and is in the lesser curvature or on the anterior or posterior wall. If these recommendations are followed, there will be no significant delay in the recognition of gastric cancer.

Gastric resection for carcinoma originally involved no attempt to excise any tissue but that of the stomach itself. Now 3 areas—the regional lymph nodes, the proximal centimeter of the duodenum, and the great omentum—should be removed with every resection for cancer of the stomach in which cure is the objective.

As a corollary to the concept that gastric ulcer should be considered to be cancer until the pathologist proves it to

be benign, it follows that the same operation should be carried out for gastric ulcers.

Recently Churchill and Sweet in this hospital have developed the technic of transthoracic gastrectomy. With this approach through the diaphragm, extension of the cancer into the esophagus is easily amenable to resection. Many areas of metastases cannot be removed surgically. Metastatic lymph nodes in the head of the pancreas about the superior mesenteric artery or about the hepatic artery are nearly always nonresectable.

Five-year survivals are not to be expected if other viscera are involved as well as the stomach, so that massive resections of multiple viscera should be considered of value only as a palliative procedure.

The method of increasing the number of five-year cures of cancer of the stomach has been the reduction of excessive postoperative mortality in the period 1932-1936. This was 25%. It has dropped to a present level of 17% for the entire series and to 10% in the last five-year period for gastric resections. The mortality of subtotal resections in which all gross disease is removed

has been 3% in the last 5-year period. The factors that have contributed to this are improved anesthesia, more careful blood, protein, and vitamin replacement and chemotherapy. The anesthetic agent now employed is intratracheal ether administration, although our choice in patients who are not to have the diaphragm opened is continuous spinal novocain administered locally. Parenteral use of penicillin just before, during, and after operation has contributed a great deal to a smooth convalescence. Sodium sulfadiazine has also been employed.

A technical improvement is the introduction of the routine use of double jejunostomy after gastric resection. The proximal tube is led back through the gastroenterostomy, and the distal one serves as a jejunostomy for feeding. Thus the stomach is decompressed postoperatively without the use of a Levin tube.

With total gastrectomy five-year cures are very rare and transthoracic gastrectomies have not been done long enough to evaluate the curability rate. Practically all the favorable cases fell into the group of subtotal resections in

which all gross cancer is removed. In the years 1937-1941, there were 73 operative survivors who has metastases. Only four patients or 5% lived 5 years. Of 42 patients who survived operation and had no extension to the re-

gional nodes 20 or about 50% lived 5 years. The most fruitful method now available to increase the number of cures of cancer of the stomach is to reduce the delay from onset of the symptoms to surgical intervention.

LKF:CBH



METOPON HYDROCHLORIDE AVAILABLE BY PRESCRIPTION

The Treasury Department announced on June 21, 1948, that Metopon has been released to qualified wholesale drug dealers, hospitals, druggists and practitioners. Subject to compliance with Federal narcotics laws and regulations, physicians may now make the drug available to patients on prescriptions.

The limited use of Metopon Hydrochloride (Methyldihydromorphinone hydrochloride) for the relief of pain in cancer cases was originally recommended by the Drug Addiction Committee of the National Research Council. In the past Metopon could be obtained only by using a regular official Narcotic Order Form accompanied by a signed statement supplying information as to the number of patients to be treated and the diagnosis in each case.

Chemically, Metopon is a morphine derivative; pharmacologically, it is qualitatively like morphine even to the properties of tolerance and addiction liability but differs in that: its analgesic effectiveness is at least double, its duration of action is about equal to that of morphine; it is nearly devoid of emetic action; tolerance to it appears to develop more slowly and to disappear more quickly and physical dependence builds up more slowly than with morphine; therapeutic analgesic doses produce little or no respiratory depression and much less mental dullness than does morphine; and it is relatively highly effective by oral administration.

Metopon is available only in capsule form for oral administration. The capsules are in bottles of 100 and each capsule contains 3.0 mg. of Metopon hydrochloride. The dose of Metopon hydrochloride is 6.0 to 9.0 mg. (2 or 3 capsules), to be repeated only on recurrence of pain, avoiding regular by-the-clock administration. As with morphine, it is most desirable to keep the dose at the lowest level compatible with adequate pain relief. Therefore, administration should be started with two capsules per dose, increasing to three only if the analgesic effects are insufficient.—*Release, American Cancer Society, Inc.*

EMPLOYMENT OF THE INTRA-UTERINE PACK IN THE MANAGEMENT OF POSTPARTUM HEMORRHAGE

By L. A. Day, M.D., R. D. Mussey, M.D., and R. W. DeVoe, M.D.

Rochester, Minnesota

Condensed from the Proceeding of the Staff Meetings of the Mayo Clinic

THE employment of the intra-uterine pack in the management of postpartum hemorrhage is controversial among obstetricians. Although a decided majority of those who have written on this subject favor use of this procedure, a minority vigorously opposes it. Those who oppose it state that it is unphysiologic to place a pack in the uterus to control bleeding because, they say, first, it holds open the uterine sinuses at the placental site, and second, it tends to keep the uterus from contracting tightly. We hold the opinion that the pack lessens hemorrhage by making direct pressure on the bleeding area and that the pack in the uterine cavity acts as a foreign body to stimulate uterine contraction.

Among the causes of postpartum hemorrhage may be listed: uterine inertia, prolongation of labor, the development of fatigue, dehydration and acidosis; operative deliveries; overdistention of

the uterus by a large baby, twins, and hydramnion; and the faulty management of the third stage of labor.

Avoidance of the ill-advised and unnecessary operative procedures and proper management of the third stage of labor are very important in conserving blood. To facilitate and shorten the stage of placental expulsion and hence reduce blood loss, an injection of the extract of the posterior lobe of the pituitary gland is given as the head is born. We have followed with reasonable uniformity the rule of withholding massage of the uterus until symptoms and signs indicate that placental separation has occurred. Then the placenta is delivered by abdominal pressure on the uterine fundus. If the placenta is retained without signs of separation for more than twenty minutes or if bleeding persists, an attempt is made to deliver it by the Credé maneuver with sufficient anesthetization of the patient to relax the uterus.

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(*Proceedings of the Staff Meetings of the Mayo Clinic, April 14, 23: 176-181*)

If this fails and the patient is not bleeding, manual removal is not resorted to for another forty minutes or at any time sooner if there is any significant bleeding.

After the delivery of the placenta if the uterus is atonic and bleeding occurs, the fundus is massaged vigorously and a sterile ergot preparation is administered either intramuscularly or intravenously. If the bleeding continues to be excessive in spite of this treatment the uterine cavity is explored manually for retained placental fragments, all blood clots are removed and then the uterus is firmly packed with iodoform gauze in strips 2 inches (5 cm.) wide and 5 yards (4.6 m.) long, several lengths being tied together when more than one strip is needed to fill the uterine cavity. Occasionally it is necessary to pack the vagina. As soon as the total amount of blood lost exceeds 500 cc. a blood transfusion is started.

Persistent postpartum bleeding ordinarily is con-

trolled by a well-placed intra-uterine pack. Six of our patients, three primiparas and three multiparas, continued to bleed through the pack. The bleeding of three of these six patients was controlled effectively by repacking of the uterus. However, the hemorrhage of the remaining three patients could not be controlled by the use of oxytocic agents, massage or in the reinsertion of an intra-uterine pack. Hence, abdominal hysterectomy was done.

If correction is made for those patients who had infection of the breast or the urinary tract, phlebitis and embolism the number of patients who had a febrile postpartum course consequent to packing of the uterus would be 16 (including those who had febrile reactions of undetermined cause, probably endometritis), an incidence of 6%. In a period of more than 30 years only one case was encountered in which dermatitis due to sensitivity to iodine developed.

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CBL:RDD



Surprising fact announced by the VA: One in every 25 veterans being educated with G.I.-Bill aid is preparing for a career in health.—*The A.S.T.A. Journal*, July, 35:116, 1948.

A CONSIDERATION OF ROETGEN THERAPY IN PRODUCING TEMPORARY DEPILATION FOR TINEA CAPITIS

By Eugene P. Pendergrass, M.D., and J. Francis Mahoney, M.D., Philadelphia

Condensed from Radiology

AT THE present time, temporary epilation of the scalp by X-rays is the treatment of choice for tinea capitis. This is not a new concept. It has stood the test of time for over 40 years. In no other disease has roentgen therapy shown such a favorable percentage of cures over any other type of treatment.

During the last two years, in the Radiological Clinic of the Hospital of the University of Pennsylvania, over 160 children with tinea capitis have been treated by the closed-portal method for temporary roentgen depilation. In 120 cases a 12-month period has elapsed since depilation; only one failure has been observed to date.

None of these patients has shown any localized or complete permanent alopecia. According to the parents' statements, the hair is of equal texture and is as thick as the original hair. The scalp has regained its normal oiliness and there is no untoward pigmentation of the surrounding

skin. In the case regarded as a failure, the hair re-growth was normal, but the infection persists.

PROCEDURE. 1. The family of the child is told about the natural history of the disease and what may be expected from X-ray treatment. Many fathers and mothers are hesitant about giving permission for the treatment after being told that temporary depilation lasts for three months, and that only rarely will a permanent depilation occur.

2. Local treatment is discontinued for at least one week before the X-ray depilation is undertaken. Otherwise, unnecessary reactions are produced.

3. The child is brought to the X-ray department with the hair clipped short to the scalp. Shaving the head closely is undesirable.

4. The head of the child is carefully inspected, the portals are marked out upon the scalp with ink, and the treatment is administered.

Our technic requires ap-

proximately 20 to 25 minutes. The treatment is painless. Children over the age of 5 usually co-operate well and will hold still while the procedure is carried out. We have depilated children as young as 30 months. For some of the more excitable ones, the oral administration of 1 gr. of phenobarbital about 45 minutes before the radiation is administered has been most helpful.

When the irradiation is completed, the parents are instructed as to the care of the scalp and the patient is asked to return at the end of three weeks. Some fever and restlessness, with loss of appetite, frequently occur during the first 24 hours after irradiation. These symptoms may be due to radiation sickness.

Because of instances of apparent dissemination of infection after irradiation among are early cases, no subsequent patients with severe secondary infection were treated until this had been controlled.

MacKee considers 300 r. an epilating dose for children, but we have found this amount insufficient to produce complete depilation. By selecting relatively flat surfaces

of the head and shielding the surrounding area with lead as each individual portal was treated, a higher dose could be delivered to the surface under treatment without exposing the surrounding areas as in the Adamson-Kienbock method. The hair-bearing areas usually consist of 4 to 6 fairly flat plateaus joined together at rather acute angles.

When the patient presents himself for depilation, the edges of the various plateaus are carefully plotted with red ink upon the closely cropped scalp. The X-ray therapy tube is equipped with the common truncated cone, whose lower diameter is sufficient to cover any area of the plateaus that will be encountered. The cone is placed so that the lower edge is on a level with the highest point of the plateau and the central point is directly over the center of the plateau. Further angulation of the cone in the left-right and antero-posterior axes equalizes the difference in height between the 4 corners of the plateau, with an imaginary plane drawn through the lower border of the cone. This difference in height is usually less than 4 cm.

After the appropriate dose

of radiation is delivered, the edge of each area is carefully marked off in black ink to indicate the actual field treated and to define the edge for treatment of the adjacent area.

A heavy duty intermediate voltage water-cooled therapy tube, operating on a Villard circuit is used, with the following factors: 75 Kv.p., 18 ma., no added filtration, focal skin distance 26 cm. The output is measured in air at 220 r. per minute. Each field is given 500 r. (in air). The dose to each central area is 500 r. (in air), which is the largest dose delivered to any one area in the scalp, the amount gradually falling off as the periphery is approached. Such a dose produces a complete and uniform temporary depilation over the entire hair-bearing scalp.

The defluvium has occurred as early as the 13th day and as late as the twenty-first day; in the average case, appreciable loss of hair is noticed about the 16th day. It is at this time that the condition is most infectious. A stocking cap is advised, to prevent promiscuous scattering of hair.

On the 20th day an adhesive strapping is applied to the head and the remaining

hairs are removed. All the loose hair should be gathered carefully and burned, as the organism is quite hardy. Some of our specimens of hair for culture which were misplaced for over one year produced as rapid and characteristic growth on the potato agar medium at the end of that time as did newly plucked hairs.

The hairs are easily removed by the adhesive strapping, but if the head has been closely shaved, many of them cannot be grasped and the adhesive can get no purchase upon them. In addition, many of the diseased hairs are broken off flush with the scalp and will remain in place unless removed by a depilatory wax. We use the epilating wax of Pusey, a mixture of finely powdered rosin (4 parts by weight) and beeswax (one part by weight). This is heated and spread on a smooth piece of old linen. It has the consistency of an ordinary glue. After cooling somewhat, it is pressed carefully into the scalp and allowed to remain ten or fifteen minutes until it is hard. It is then stripped off and in most instances removes all remaining hairs.

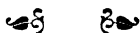
After all the hair has been

removed from the head, the child is not infectious. It has been found that local treatment is not necessary after depilation. The child is completely bald for about six weeks, after which a fine, fuzzy growth of new hair makes its appearance.

The scalp is usually dry during the first 4 or 5 months, since the amount of irradiation given is sufficient to pro-

duce temporary inactivation of the sebaceous glands. The normal oiliness is regained within one year after treatment. The head can be kept clean by a warm olive oil massage twice a week at bedtime followed by a castile soap shampoo in the morning. In none of our cases have dryness and scaling of the scalp persisted more than 6 to 8 months after irradiation.

JPS:HBJ



THE ADVANTAGES OF IMPURE PENICILLIN

Recent investigations now tend to confirm the suspicion that imperfectly purified penicillin of earlier days was more effective than the refined present-day product.

Rake, Dunham and Donovick have shown that certain samples of impure commercial penicillin were decidedly more active than pure penicillin G (the most active of the pure types) in the treatment of syphilis in the rabbit. Another observation pointing in the same direction is that of Groupe and Rake, who found that the action of commercial penicillin on the viruses of canary pox, fowl pox and vaccinia was entirely due to impurities. This activity persisted after the penicillin itself had been destroyed with penicillinase, and pure penicillin had no effect.

Other investigators have established the fact that unit for unit the impure materials were more effective. In one set of experiments, the impure preparations proved to be two and one half to three times the potency of the pure drug.

Highly refined penicillin is essential for intrathecal and intra-ocular use, but for intramuscular injection crude material has only minor disadvantages; it is more painful, more apt to cause local inflammatory changes, and perhaps more often responsible for sensitization phenomena. At least we now have an explanation why the standard dose of 100,000 units a day which was used for almost all purposes in early therapeutic studies was apparently as effective as the larger doses used today.—*British Medical Journal*, April 24, 1948.

JPS:CHC

THE USES OF STREPTOMYCIN IN UROLOGY

By John T. MacLean, M.D., Emerson Smith, M.D., Lloyd Bower, M.D., and

Frederick Smith, M.D., Montreal

Condensed from the Canadian Medical Association Journal

Streptomycin and Moogrol in Genito-Urinary Tuberculosis

HINSHAW et al in a report on over 100 various types of tuberculosis state that "The mycobacterium of tuberculosis is susceptible to streptomycin and that the course of the disease can be changed if an adequate dose is administered." It has been known for some time the *M. tuberculosis* like the *M. leprae* has a waxy cell wall, which protects the organism. Slotkin concluded that if there was a substance which would dissolve this protecting waxy wall of the *M. tuberculosis* the organism might then be attacked by an antibiotic. He conceived the idea of dissolving this waxy wall with chaulmoogra oil and then giving the organism what would now be a lethal dose of streptomycin. He reported six cases so treated with apparently exceptionally good results.

During the past year we have had an unusual opportunity to study the possibilities offered by this method of

treatment, and wish to present our conclusion based on ten cases so treated. In all cases treated, moogrol, which is the ethyl ester of hydnocarpus oil, was used.

In attempting to evaluate any type of therapy in cases of genito-urinary tuberculosis, it must be borne in mind that the greatest single characteristic of this type of tuberculosis is its marked tendency to spread. Further, it is a well known fact that removal of a tuberculous kidney alone without any chemotherapy at all, will often result in immediate relief of urinary symptoms and rapid healing of the bladder lesions. In evaluating the effect of moogrol and streptomycin therapy on genito-urinary tuberculosis, one must therefore exercise reasonable caution.

It is realized that the number of cases presented is small, and does not necessarily establish incontrovertible proof. However, the observations are interesting, and we believe that there is sufficient evidence

to indicate that by the use of 1cc. of moogrol and 1 Gm. of streptomycin daily for one month, in cases of genito-urinary tuberculosis, certain benefits may ensue.

CONCLUSIONS. 1. With the use of streptomycin and moogrol, there is definite clinical improvement at the end of the period of therapy in some cases of renal tuberculosis and pronounced improvement in others.

2. Tuberculous epididymitis responds very slowly, if at all, to streptomycin therapy. This parallels exactly the failure to obtain an adequate concentration of the drug in the tissue concerned.

3. There is little to be gained by giving moogrol and streptomycin therapy to patients with a small contracted tuberculous bladder, especially if the urine is negative for

tubercle bacilli. The clinical symptoms are perhaps slightly improved, but the overall picture is unaltered.

4. In a case of bilateral renal tuberculosis the more severely infected kidney was removed and the lesion in the other kidney healed following moogrol and streptomycin therapy.

5. Intensive therapy with moogrol and streptomycin appears to hasten the granulation and healing of grossly infected tuberculous wounds.

7. There was no demonstrable spread of infection during the period of observation in any of the ten patients treated.

8. The optimum dosage of moogrol and streptomycin, and the length of time over which this should be given, has not yet been established.



BH:KOE



X-RAYS BY TELEPHONE

X-ray pictures can now be sent by telephone. This new development, with life-saving implications for accident victims, was announced by Dr. J. Gershon-Cohen of Philadelphia and A. G. Cooley, New York engineer, at the meeting of the American Medical Association in Chicago.—*Science News Letter*, July 3, 54: 13, 1948

THE ACUTE GALLBLADDER

By Robert M. Zollinger, M.D., and Harold T. Gross, M.D., Columbus, Ohio

Condensed from the Ohio State Medical Journal

COMPLAINTS involving the biliary system are quite common and physicians should weigh the risks of surgery in the early stages as a preventive measure against probable higher mortality rate among such patients in later years. There are many conflicting opinions regarding the optimum time for operation and this will be discussed later.

Immediate hospitalization of the patient is imperative because it is impossible to predict the subsequent course of this disease. Infection plays a leading role in the starting in some cases of acute cholecystitis. However, in the majority of cases it is probable that infection is a process superimposed on already damaged tissue. Recent investigations tend to show that acute cholecystitis is a result of a chemical rather than bacterial irritation. Bile salts are absorbed and an increase in the calcium carbonate, sodium chloride, and cholesterol content results. This concentrated mixture, resembling so-called "pus" produces an

irritation of the gallbladder mucosa.

The symptoms of acute cholecystitis are pain in the right upper quadrant associated with varying degrees of nausea and vomiting, muscular rigidity, fever, and leucocytosis. Also there is a fairly long history of attacks of biliary colic. There is a great deal of controversy over treatment. The policy of watchful waiting versus early operation must be decided. Those advocating early operation tend to show a lower incidence of complications and obviously a shorter period of hospitalization. There is a lower mortality reported with early operation.

When the diagnosis has been made, morphine and atropine are used for the relief of pain and also nitroglycerin. Routine laboratory work should be done and also blood sugar, urea nitrogen, prothrombin, CO_2 , combining power, chlorides, plasma proteins, and blood amylase. This latter is taken to rule out an associated pancreatitis. The

restoration of fluid and electrolyte balance should be begun. Supplementary vitamins, including Vitamin K, are given. Constant gastric suction is instituted if there has been vomiting or evidence of distention. The use of sulfa or penicillin is of little value in cases of acute cholecystitis.

Frequent examination and observation of clinical signs and symptoms of patients are made. An increase in temperature, pulse, and respiratory rate and increased white and differential count, a decreasing vital capacity, and persistent and increasing signs of tenderness in the right upper quadrant indicate the progression of the disease. A probable gangrenous process with possible perforation should be considered if the white count is elevated to 20,000 or above.

The optimum time for operating depends entirely on the general condition of the patient and the progression of the pathologic process. We have reached the following conclusions: (1) We favor early operation in good risk patients. (2) Early operation is imperative if there are signs of generalized peritonitis. (3) Operation should be considered if the signs and

symptoms do not improve within 24-36 hours after admission to the hospital. (4) Surgery should be carried out if the patient doing well on conservative management has a recurrence of pain requiring additional morphine, develops a higher temperature and leucocytosis or an increase in the size of the mass in the right upper quadrant.

It is believed desirable to delay operation in those patients seen rather late in the course of their disease and already having decreasing signs and symptoms. However, we believe that after this, the patient should be subjected to surgery and not sent home to run the risk of a recurrent episode.

The type and extent of surgical procedure cannot be determined until the gallbladder is seen. The general condition of the patient, the presence of an abscess, and the technical difficulties encountered in isolating the gallbladder, especially in the region of the ampulla and cystic duct, determines the type and extent of the operation. Cholecystectomy to isolate the cystic vessels or duct. After splitting the gallbladder from the fundus down to the region of

the ampulla, the excess gallbladder is trimmed away, leaving that portion adjacent to the liver undisturbed. An attempt is made to anchor a small catheter into the cystic duct and Penrose drains are inserted.

The surgeon should keep in mind the possible dangers in performing a cholecystectomy. The gallbladder may be avulsed from the liver bed if too much traction is applied

before an incision is made through the serosa. Secondly, there is a danger of injury to the common duct if clamps are applied to the region of the distended ampulla before it has been isolated from the adjacent structures. Thirdly, it should be remembered that the common duct, the cystic duct, and vessels, may be drawn up into an unusual position as a result of the inflammatory process.

LKF:CBH



LATER YEARS ARE RATED SPECIAL CONCERN OF WOMEN

BECAUSE the average woman is destined to outlive the average man, the middle and later years are of special concern to women, says Dr. Clive McCay, professor of nutrition at Cornell University.

"Furthermore," he says, "wives are usually younger than husbands, and like it or not, the average wife must face five to eight years of widowhood."

All of which means that older women must face the future realistically. "The best insurance for health during the late years is to cultivate good food habits throughout life."

Fixed food habits centered on poor diets such as living on tea and crackers insure poor health and disaster during the late years, he warns.

Pointing out that many more women than men are in homes for the aged, Dr. McCay says the time would seem ripe for women's organizations to demonstrate what they can do in solving problems for the aged. These problems involve economics, sociology, housing, employment, recreation, psychology, medical care and numerous other fields.

"These problems are solvable," says the Cornell scientist, "but few of us face them until our minds and bodies are too far exhausted."—*Science News Letter*, July 10, 54: 19, 1948.

VITAMIN D₂ IN THE TREATMENT OF CUTANEOUS TUBERCULOSIS

By Jacques Charpy, Dijon, France

Condensed from the British Journal of Dermatology and Syphilology

VITAMIN D when properly used is a useful therapeutic agent in the treatment of cutaneous tuberculosis. The principle consists in administering chemically pure vitamin D₂ by mouth in alcoholic solution, in single doses of 15 mg. (600,000 i.u.), repeated from twice to once a week during many consecutive months. The preparation used is Sterogyl 15 alcoholic. Such therapy has revolutionized the prognosis of lupus vulgaris.

TECHNIC OF TREATMENT. The following are my conclusions, based on personal experience during six years, in regard to 150 cases of tuberculous lupus followed from beginning to end, and of about 60 other cases followed periodically:

1. The doses of vitamin D should be strong in the beginning, then moderately strong, but above all regular and long continued.

The following plan can be recommended:

Two doses per week during 4 weeks.

One weekly dose for the following months.

Vitamin D has a more active effect when taken by mouth because of better absorption.

In general, the alcoholic seems to be more effective than the oily solution.

2. Treatment should be prolonged. Experience has shown that when it is stopped too soon, even when cure appears to be complete, relapse can occur. One should continue with one dose of 15 mg. a week for at least one year, often for two years.

3. For vitamin D to have its maximum effect, it is absolutely indispensable that the patients be on a precise dietary and hygienic regime:

It is highly important that they be given milk, 1½ pints a day, meat regularly and in moderate quantity, plenty of vegetables, including raw vegetables and raw fruit.

On the other hand, pork, sausages, canned foods, salted meats or other salted foods and seasoning should be excluded. Fats generally should

be given only in moderate quantities. The diet should have little salt, and salt should be completely suppressed during one to three consecutive days a week. No alcohol and no whole wheat bread should be given.

The patients should lead an open-air life.

RESULTS IN LUPUS. Brilliant results are obtained in ulcerated lupus; a little slower in the tumid forms and in the edematous and congestive type; slower still in the erythematous-nodular lupus ruper planus, which is, however, of benign appearance. It is well to note the great tractability of mucous membrane lesions, which disappear very rapidly. Adenitis and lymphangitis disappear, for the most part, during treatment; it is sometimes useful to puncture "cold" abscesses.

The therapeutic effect should always be detectable from the beginning of the treatment and should become obvious by the fifteenth day. Should there be no result at that time, one must suppose something abnormal to be the cause; for instance, lack of absorption, or biliary insufficiency, or inadequate tissue permeability through an ex-

cess of sodium chloride, or the coexistence of syphilis, which, of course, would be treated at the same time.

The anatomic characteristics of this cure are the disappearance of specific tuberculous elements, and their replacement by a lymphoplasmocytic infiltrate, and the reconstitution of a tissue normal in all respects. This process, however, may take from two months to one or two years and exceeds, in any case, the apparent clinical cure; hence the necessity of continuing treatment a number of months longer.

TOLERANCE TO TREATMENT. Out of a great number of cases I do not know a single one in whom treatment had to be interrupted on account of intolerance. It must, however, be well recognized that this dosage, which one may call "moderate over-dosage", is fairly near the limit of tolerance. To exceed it invites poisoning, more often benign, but which can become serious in time, and which must be lead, in any case, to the interruption of treatment, the benefit of which is thereby lost.

Poisoning appears to be the result of a gross disturbance

of phosphorus and calcium metabolism. It is always manifested first by clinical warnings. First of all, sudden anorexia appears, which is always important, then nausea, vomiting, torpor and depression, accompanied by pallor and headaches (meningitis is brought to mind, but there are no characteristic signs of this). Excessive thirst and polyuria appear early. Examination of the blood shows a very variable increase of plasma calcium, and most often, in a later stage, a very abnormal amount of urea.

TUBERCULIN REACTION. Tuberculin tests give little information. In general, the reactions slightly diminish with treatment, but only exceptionally do they disappear. One cannot give a prognosis on their behavior. The erythrocyte sedimentation is also inconstant.

INDICATIONS OTHER THAN LUPUS. Warty tuberculosis, which is a particularly virulent infection and rich in bacilli, is cured completely in three to four months.

In tuberculous ulcers of the mouth accompanying serious

cavity tuberculosis of the lungs, vitamin D₂ is always useful but seldom decisive (only in one case out of six). Treatment should be completed by a local caustic.

The indurated erythema of Bazin, a tuberculide of vascular pathology, requires rest and a vasodilatative or trophic medication combined with vitamin D. A combination with big doses of vitamin C is indicated.

Vitamin D has no influence on erythematous lupus. Sometimes an erythematous lupus has been seen to appear during treatment.

Among other localized forms of tuberculosis which respond are tuberculous orchididymitis, taken in time; most forms of ocular tuberculosis; osteoarticular tuberculosis in children; and finally most forms of tuberculous seritis (pleurisy, peritonitis).

Psoriasis, contrary to some American and French reports, does not respond. On the other hand, lichen planus lesions disappear very rapidly.

Finally, according to Montel, vitamin D is worth trying in leprosy.

MANAGEMENT OF ALLERGIC DISEASE OF THE RESPIRATORY TRACT IN CHILDREN

By George B. Logan, M.D., Rochester, Minn.

Condensed from the Pennsylvania Medical Journal

ADEQUATE management of any allergic respiratory disease depends upon a thorough investigation. It cannot be too often emphasized, for it seems to be as often forgotten, that a well-taken history is the keystone of an allergic study. The influence of season, temperature, humidity, infections, psychogenic factors, dwelling, foods, and human, animal and other contacts should be ascertained. A description of the home, particularly the heating system and the bedroom, should be obtained when the problem is of the perennial type.

A careful physical examination should be carried out. A roentgenologic study of the chest should be part of the examination. It is generally best to include a lateral view as well as the usual anteroposterior one. A complete blood count should be done.

A stained smear of the nasal secretions will reveal few to many eosinophils in the child with nasal allergic disease. This procedure can

be done easily in the office. The secretions are obtained from the nose by cotton swab or by having the patient blow his nose upon clean wax paper or cleansing tissue. The material so obtained is smeared on a clean glass slide. This is air-dried and fixed lightly with heat. Staining then is carried out with Wright's stain as one would stain a blood smear. The smear is then examined under oil with the high dry objective in the microscope.

At times more than one smear will have to be made to obtain a positive result. Nasal secretions which do not contain eosinophilic leukocytes probably are not the result of allergic disease.

Skin tests can then be performed. One must be sure that potent antigens are employed. Four methods of applying them may be used: scratch, intradermal, multiple puncture, and passive transfer. The scratch method is simple, practically painless, but not as sensitive as the others. The

intradermal method requires considerable syringe equipment and sterile antigens but is the most sensitive, though it is more likely to give systemic reactions. The practice at the clinic is to use scratch tests on children up to the age of 5 years. If it is thought necessary, a few selected intradermal tests are carried out in children of this age group. In testing older children the intradermal method is used except for the food antigens.

It has been the experience at the clinic that the degree of skin reactivity need not parallel the degree of severity of the allergic disease in the patient. In other words, a slight degree of skin reaction may be significant, whereas a marked reaction need not indicate that the antigen is etiologically significant.

Skin tests for sensitivity to food substances seem to be of less help than do those for sensitivity to inhalant substances. Some form of elimination diet, or food diary, though a cumbersome procedure, is still the best method for investigating the foods etiologically responsible for allergic disease.

VASOMOTOR RHINITIS. The term "vasomotor rhinitis" is

here used to include both seasonal (hay fever) and non-seasonal types. The pathologic process and the clinical manifestations are the same. The methods of treatment are similar.

The gross pathologic change in this disease, namely, pale swelling of the nasal mucous membrane, is apparent to any physician who looks into the nose of a patient suffering from nasal allergy.

The symptoms of vasomotor rhinitis from which a patient seeks relief are chiefly sneezing, nasal obstruction, and itching of the nose, mouth and eyes.

Relief is usually obtained by going to a place where the offending antigen is not present. This place may be another section of the country, or an air-filtered dust-free room.

Individual air-filter units for use in single rooms are becoming commercially available again. These may be obtained both with and without cooling units. Unfortunately, their cost puts them out of reach of many who need them. At the clinic we still suggest the use of an air-filter unit which may be constructed by the patient's family.

The introduction within the past two years of the use of the so-called antihistamine drugs has changed the approach to the symptomatic treatment of vasomotor rhinitis, especially the seasonal forms.

Clinical trials of benadryl hydrochloride (diphenhydramine hydrochloride) and pyribenzamine (tripelennamine) were begun in 1945 and the early reports on the results began to appear in the fall of that year. Since these drugs have now been commercially available for more than a year, many undoubtedly have had an opportunity to try them.

Antistin was reported as an antihistamine drug in the Swiss literature in the spring of 1946. Its use in the United States is, at present, limited to that of an experimental drug. My experience with this drug is too limited to warrant extended comment.

Several other drugs are at present being tried experimentally, but none are on the market.

The drugs currently available do not permit the elimination of specific desensitization programs. Whether this will be possible in the future cannot now be stated. It has

been feared by some physicians that the use of these drugs will interfere with the development of any immunity which specific therapy might help to produce. It has also been suggested that if hay fever patients are treated for too long a period of time, a shift of the shock organ might occur and asthma might result. More experience with these drugs is necessary before dogmatic conclusions can be drawn.

At the present time I suggest that children suffering from mild hay fever be treated with one of the antihistamine drugs; that those whose symptoms are severe or complicated by asthma be treated by specific hyposensitization with the pollen responsible for the hay fever, and that one of these drugs be employed to complement a program of hyposensitization which is giving the patient inadequate relief. The antihistamine drugs are especially useful in relieving young children who appear in the office for treatment for the first time during the pollen season.

In treating children at the clinic we have found that a daily dose of either drug of approximately 2 mg. per

pound (0.5 kg.) of body weight is usually effective. This is often divided into two to five doses. A child under the age of 5 years may require a little larger dose than this and one about the age of 12 years, a little smaller dose.

Untoward reactions to the use of benadryl and pyribenzamine have occurred in 25 to 80 per cent of cases. Experience at the clinic has been that 25 to 30 per cent of children have undesirable reactions, but not all of these reactions have been cause for discontinuance of administration of the drug. Drowsiness has been the chief untoward reaction which children have experienced.

Programs of specific hypsensitization still constitute the best time-proved method for the treatment of seasonal vasomotor rhinitis. Such programs are generally considered to be from 75 to 85 per cent successful. Hay fever caused by tree pollens is often not severe enough to warrant this type of treatment.

Both the year-around or perennial method of desensitization and the preseasonal and coseasonal methods are used.

ASTHMA. When confronted

with a child suspected of having asthma, one must first ascertain that the situation is really due to asthma. Then the treatment must be fitted to the situation. Placing a child in an air-conditioned room will frequently bring fairly prompt relief if the offending substance is of the inhalant type.

Either edema of the mucous membrane of the bronchial tree or bronchospasm or both seem to be the important features of the asthmatic episodes which occur as definite individual attacks. The action of epinephrine is to reduce the edema through vasoconstriction and to counteract bronchospasm by stimulating the sympathetic nerve endings. When epinephrine is to be given hypodermically as an aqueous solution of 1:1000, it is best administered in small doses of 0.2 to 0.3 cc. Such doses may be repeated. Rarely in a child is it necessary to exceed a dose of 0.5 cc. Single small doses are frequently as effective as larger ones and they reduce the hazard of the untoward reactions to the drug.

Epinephrine also may be administered in 1:100 solution by means of a nebulizer. For

small children the nebulizer can be operated by an adult; older children learn easily to use it themselves. Untoward reactions to epinephrine are rarely seen when it is administered in this manner.

When an epinephrine action is desired, but not too urgently, and when an oral preparation is adequate, ephedrine or one of the synthetic substances related to it is best used.

A preliminary report of a new drug "isuprel" has appeared. In this report it has been suggested that the preparation may be of value in the treatment of asthma, as its use seems to increase vital capacity. This drug may be given orally, subcutaneously, and by nebulizer.

Aminophylline is presumed to exert its beneficial effect by the relief of bronchospasm. In the more prolonged attacks in which spasm might be more important than edema, aminophylline may provide relief when epinephrine has failed to do so. The simplest and a very effective method of administering the drug to a child is by suppository. A dose of $3\frac{3}{4}$ grs. (0.25 Gm.) of aminophylline may be given to children aged 2 to 5 years;

older children may require 5 to $7\frac{1}{2}$ grs. (0.3 to 0.48 Gm.).

The drug may also be given orally. It is frequently combined with ephedrine and one of the barbiturates. Several such combinations are on the market under proprietary names.

The recently described steam aerosol apparatus of Prigal and his associates may be used to nebulize aminophylline.

There has been considerable disagreement over the therapeutic value of the antihistamine drugs in asthma. Experience at the clinic in children seems to have been more favorable than has that of others. We have called attention, however, to the necessity for the administration of these drugs very early in the course of an attack.

The experience of one of our patients illustrates this point. This 8-year-old boy is sensitive, among other things, to horse dander. If he takes 50 mg. of benadryl shortly after contact with a horse, an asthmatic attack can be averted. Once the attack is established, antihistamine drugs are of no help.

Children suffering from chronic asthma and well-es-

tablished asthmatic episodes are rarely benefited by the use of antihistamine drugs. There are no contraindications to the use of the antihistamine drugs concomitantly with any of the drugs which have already been mentioned as useful in the symptomatic treatment of asthma. Recent work indicates that there is some synergistic action when aminophylline or ephedrine or both are used with benadryl or pyribenzamine.

A steam tent or steam room is usually the most effective means for supplying moist air. Two or three steam kettles are often necessary to provide adequate humidity.

Oxygen should be well moistened if its use becomes necessary, since unmoistened oxygen exerts an undesirable drying effect on the secretions of the respiratory tract. Mechanical humidifiers or nebulizers may be used in conjunction with an oxygen tent.

The use of 80% helium and 20% oxygen is frequently effective when oxygen alone seems to be ineffective. This mixture is best administered by mask.

The iodides have, for years, been widely used in the treatment of asthma. Experimental

evidence has shown that these drugs are effective in liquefying bronchial secretion. We find that 5 gr. (0.3 Gm.) three times daily may be given to most 3-year-old children, and that 25 to 30 grs. (1.6 to 2.0 Gm.) three times daily may be given to many 8-year-old children. Smaller doses may be effective. We have encountered instances of iodism only rarely.

At the clinic we commonly employ the saturated aqueous solution of potassium or sodium iodide, which contains 1 gr. (0.065 Gm.) per drop. This makes variations in dose easy. Its taste may be disguised by administering it in 2 to 3 fluid ounces (60 to 90 cc.) of grapefruit or grape juice, or by giving it in a teaspoonful (4 cc.) of syrup or honey. Some children prefer to take the dose in 2 to 3 fluid ounces of water and follow it by a piece of candy.

The action of vomiting brings up mucous plugs which sometimes cannot be dislodged any other way. In treating children who have asthma one may employ ipecac to produce vomiting. The usual dose is 1 teaspoonful of the syrup, repeated in a

half hour if necessary. Should the asthmatic child vomit repeatedly with the attack, the intravenous administration of fluids is necessary.

In the treatment of patients who have status asthmaticus the rectal administration of ether in oil is a useful procedure. Three to 4 ounces (90 to 120 cc.) of ether mixed with an equal amount of warmed olive oil is instilled through a small rubber catheter. An amount smaller than the initial dose may have to be repeated at intervals of a few hours for twenty-four hours. After the use of ether by rectum some patients who have been refractory to epinephrine again respond favorably to its use.

While some physicians still condone the use of narcotics, such as morphine, codeine, and dilaudid in treating asthma, our feeling is that their

use is to be condemned. While there have been apparent instances of benefit following the use of narcotics, the deaths which have followed their use seem more impressive. If sedation seems necessary, one of the barbiturates and demerol are better suited for use in treating asthma. It is not wise to produce sedation in a child who has any obstruction in the bronchial tree without first relieving the obstruction.

Atrophine and belladonna are sometimes used in the treatment of asthma. Unless combined with moistening agents, their drying effect contraindicates their use in children.

Ethylene disulfonate, if such a compound really exists, has been found to be of no value in the treatment of asthma or, for that matter, any allergic condition.

KAE:KOE



Plans are announced for the Government's new \$40-million hospital-research center at Bethesda, Md. To be run by PHS for study of cancer, heart disease, mental illness, etc. Will provide facilities for 500 patients, 1,500 scientific workers. Floor space in main 13-story building: one-third for beds, two-thirds for laboratories. Bids to be asked for this month. Construction to start soon. Completion due in three years.—*The A.S.T.A. Journal*, July, 35: 77, 1948.

NASAL HEMORRHAGIC TELANGIECTATIC BLEEDING CONTROLLED BY THE USE OF SYLNASOL

By J. Kasnetz, M.D., Brooklyn

Condensed from the Eye, Ear, Nose and Throat Monthly

DIAGNOSTICALLY the symptom complex is recognized by the history of repeated nasal bleeding and the presence of telangiectasis. There is a hereditary tendency in the family. Male and female can be inflicted alike. The bleeding time and coagulation time will be found to be within normal limits.

In treating these cases the most important thing to do first is to control the immediate bleeding. This is accomplished by spraying the nasal chambers with a 5% cocaine hydrochloride solution and packing them gently with a $\frac{1}{2}$ inch plain gauze dipped in a solution of 1-1000 adrenamine chloride. If the bleeding was profuse and much blood had been lost, transfusion should be given. Secondary shock and weakness should be treated accordingly.

A more permanent cure has always been a problem to the general practitioner and to the rhinologist. Various methods have been tried, used and

abandoned. Literature is abundant with the usages and results of such drugs as trichloro-acetic acid, chromic acid, silver nitrate and carbon dioxide snow, also the use of electric cautery and irradiation. The fallacy in each of these methods is that in its application tissue is being destroyed, a new wound is formed, and by the time this new lesion is healed new nevi are formed.

In the use of a sclerotic agent (Synlasol) the above pitfalls are avoided. There is no destruction of basic tissue, no sloughing and therefore no healing of newly created lesions. Synlasol is a 5% solution of the sodium salt of the fatty acids of sodium psyllate. Histologic studies of Synlasol reveal the production of adult fibrous tissue with a minimum of the serous exudative phase of the reaction characterized by an accumulation of polymorphonuclear cells and with a preponderance of the proliferative phase exhibited by an

abundant production of rapidly maturing fibroblasts, thus avoiding any predisposition of abscess, formation and necrosis. In other words, firm scar tissue is produced without any undesirable histologic changes.

Hemorrhagic telangiectasia is a term applied to a new growth, or enlargement of capillaries and venules developing after the infantile period. They are seen on the skin of the face, hands, other parts of the body and the mucous membranes of the cheek, lips, tongue and nose. Hemorrhage may be spontaneous or as a result of exertion or trauma.

The actual cause is unknown. The condition affects both female and male, and may be transmitted by either sex. Syphilis, trauma, and alcoholism have been considered as possible causes; however, more recent studies disprove completely these factors. Trauma and exertion are dominant factors in bringing about the bleeding but does not play any part in causation of the lesion.

The chief symptom is bleeding from the mucous membranes of the mouth or nose. Hemorrhage may appear as

early as the first decade and recur throughout adult life. In the nose the telangiectasis were situated on both sides of the cartilagenous portion of the septum. Vascular network were also commonly found on the inferior turbinate at its anterior attachment. These hemorrhages may repeat themselves four to five times daily or come at intervals of two to three weeks. In severe bleeding as much as two to three hundred cubic centimeters of blood is lost, leaving the patient in extreme weakness. The tendency of bleeding is greatly increased in active individuals and it reaches a point in later life whereby the slightest motion will bring on a severe loss of blood. Severe secondary anemia and debility are common concomitant symptoms in the terminal stages.

Very little pain is experienced by the patient at the time of the injection. After the wearing off of the anesthetic they will complain of smarting or burning, which lasts for a few hours. There are no systemic reactions. Locally the reaction is characterized by a circumscribed mucosal swelling with associated nasal obstruction. There is no

destruction or ulceration of the tissue locally and the physiological function of the nose is not disturbed. The number of treatments varies with the frequency of bleeding and the severity of the case. It is ad-

visable to infiltrate the nervous area before it bleeds. The patients have been observed for a number of years and they are enjoying good nasal function. Recurrence of bleeding has been negligible.

FOH:RDD



EXAMINATION FOR REGULAR CORPS

A competitive examination for appointment in the Regular Corps of the United States Public Health Service in the grade of assistant surgeon (first lieutenant) and senior assistant surgeon (captain) will be held in October. The written examination will be conducted October 4, 5, and 6 at places convenient to the candidates. The oral examination will be held at various points throughout the country.

All applicants must be at least 21 years of age and citizens of the United States, must present a diploma of graduation from a recognized medical school and satisfactorily pass a physical examination performed by Public Health Service officers.

Physicians beginning internship on July 1, 1948, will be admitted to the examination. Successful candidates will be placed on active duty in the Regular Corps upon completion of internship on July 1, 1949.

Applicants for the grade of assistant surgeon must have had at least 7 years of educational and professional training or experience, exclusive of high school. Applicants for the grade of senior assistant surgeon must have had at least 10 years of educational and professional training or experience, exclusive of high school.

Entrance pay for an assistant surgeon with dependents is \$5,011 a year and for senior assistant surgeon with dependents \$5,551 a year. This includes the additional pay of \$1200.00 for medical officers, as well as subsistence and rental allowance. Provisions are made for promotions at regular intervals up to and including the grade of senior surgeon (lieutenant colonel) and for selection for promotion to grade of medical director (colonel) at \$9,751 a year. Retirement is authorized at either completion of 30 years' service or at the age of 64. Full medical care including disability retirement at three-fourths pay is provided.

Application forms may be obtained from Public Health Service Hospitals, District Offices or by writing to the Surgeon General, United States Public Health Service, Washington 25, D. C.—
Release, Federal Security Agency.

CLINICAL EXPERIENCE WITH NITROGEN MUSTARD

By W. W. Faloon, M.D., and L. W. Gorham, M.D., Albany

Condensed from the New York State Journal of Medicine

IN November of 1946, a supply of methylbis—(beta-chlorethyl)—amine hydrochloride was made available to the Albany Hospital. We present our experience with the use of this drug in a series of 15 patients treated in the six months since that date.

METHODS AND MATERIAL. All patients except one received intravenous injections on four consecutive days of 0.1 mg. of methylbis—(beta-chlorethyl)—amine hydrochloride per Kg. of body weight. In order to reduce the severity of the immediate toxic symptoms of nausea and vomiting, nearly all patients received the injections after an over-night fast. Three grains (0.2 Gm.) of sodium amytal were given by mouth an hour before treatment.

Because of the known vesicant property of the drug, it was prepared and administered with care in order to avoid contact with the skin, the person administering it wearing rubber gloves. The injection was made through the tubing of a rapidly flowing intraven-

ous solution of normal saline in order to avoid subcutaneous leakage of the medication. Because of rapid loss of activity after the powdered drug is put into solution, the procedure is carried out within five minutes after the nitrogen mustard is dissolved.

All patients were followed with complete blood counts at least twice weekly for the three weeks following injection, and examinations were performed at least once a week. Most of these patients were hospitalized for 14 to 21 days. It is our practice now, however, to discharge the patients, if hematologic studies can be obtained at home or in the outpatient department, and provided that adequate follow-up is possible outside the hospital. After the critical initial three-week period, patients have been seen at one- or two-month intervals.

TOXIC EFFECTS. The immediate effects of the drug occurred within one to six hours after injection. These effects consisted of nausea, vomiting, and anorexia in 11 patients.

These symptoms were less marked after the first day, and frequently, subsequent injections caused only anorexia. Anorexia alone was observed in 2 patients, diarrhea in 2 patients, and no reaction in 2 others. Those showing no reaction were probably the 2 most severely ill in the series. None of these toxic symptoms persisted after the course of injections was completed. Thrombophlebitis at the site of injection developed in only 1 case.

Perhaps the most serious toxic effect of the drug was the hematologic change produced. Except in patients who received blood transfusions, the hemoglobin and erythrocyte determinations showed a transient decrease. This was most marked within the first three weeks except in cases of polycythemia vera where the maximum drop usually occurred after the first month and persisted longer than in the other diseases. Leukocyte counts showed a significant decrease in all but 1 case. This phenomenon manifested itself in an initial lymphopenia, followed by a neutropenia within 2 to 6 days. Recovery of the blood picture was noted as beginning in the third or

fourth week, and in patients who showed a good response to therapy, recovery was usually complete in eight weeks.

The leukopenia in 2 patients of this series was complicated by mouth lesions resembling Vincent's angina: treatment with penicillin and oxidizing mouth washes was required.

In all patients followed with platelet counts, a significant decrease was noted, paralleling the hemoglobin change.

RESULTS. Hodgkin's Disease. Six patients with Hodgkin's disease have been treated with responses in all after the initial course. Remissions have been induced lasting from one to five months. Three of these had had previous X-ray therapy, and one had been classed as unsuitable for further therapy by that method. The response in these cases had been marked by reduction in the size of lymph nodes, spleen, and liver and a remarkable return of temperature to normal.

Two cases have had recurrence of symptoms and response to retreatment. A third patient was refractory to X-ray therapy, but showed some response to the first two series of nitrogen mustard. Six weeks after the third series

was completed, however, he died. It is suggested by our findings in this case, and substantiated by the published case reports, that nitrogen mustard will induce a response in Hodgkin's disease patients who are X-ray-refractory or in whom such therapy is considered inadvisable. Response to nitrogen mustard will gradually become less and less definite on repeated treatment, in the same patients.

POLYCYTHEMIA VERA. Four patients with polycythemia vera were treated with responses of three to five months' duration. All these patients were relieved of symptoms, such as headache, vertigo, and paresthesias of the extremities. Reduction of splenomegaly was a constant finding in these cases.

LYMPHOSARCOMA. Three patients with lymphosarcoma have been treated with nitrogen mustard with a follow-up

of three weeks, three and a half months, and six and a half months, respectively. These cases have shown remarkable reduction in lymphadenopathy, and in 2 cases weight gain has been recorded.

It appears from our cases and those reported that the response of lymphosarcoma to methylbis — (beta-chlorethyl) — amine is very similar to that produced by roentgen therapy. A true comparison cannot be made as yet, but it is to be remembered that in the localized form of this and similar tumors, radiation therapy can be concentrated on the involved areas.

LEUKEMIA. We have undertaken treatment on 2 cases of leukemia in our series, both of them being chronic myelogenous leukemia in elderly women in the advanced stages of their disease. No beneficial effect was seen in either case.

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CLB:HBJ



Some of the educational recommendations of National Health Assembly delegates were embodied in a bill introduced by Senator Thomas (D., Utah) in May. The bill (S2588) asked for Federal aid up to \$20 million a year for medical schools alone.—*The A.S.T.A. Journal*, July, 35: 112, 1948.

RECENT ADVANCES IN SURGERY OF THE NEWBORN AND OF EARLY INFANCY

By Frederick W. Rutherford, M.D., Seattle

Condensed from the Western Journal of Surgery, Obstetrics and Gynecology

SURGERY in infancy and childhood has several major differences from the field of adult surgery. Nearly all the conditions encountered are due to developmental anomalies.

CLEFT LIP AND PALATE. Early closure is imperative with cleft lip. The child should be free from upper respiratory infection and gaining adequately. Repair may be done from two weeks to four months. The anesthesia is usually ether, using the vaporizing technic. The repair of cleft palate is deferred until 12 to 18 months of age. Repair may be done earlier if there is no intention of invading the area along the alveolar arch. A two or more stage operation appears to be the method of choice. It is well to have the child afebrile for one or two days before surgery. A mucoperiosteal flap technic is used for closing defects of the hard palate. Osteoplastic flaps have been used more frequently in re-

cent years and are best done when a persistent opening of the hard palate cannot be covered by the usual method. Care should be taken to avoid damage to the growing teeth. One of the most important phases in the care of the child with cleft lip and palate is adequate speech training. Adequate postoperative care is essential. Feeding must be controlled, restraint maintained, and a traction bow utilized.

TRACHEO-ESOPHAGEAL FISTULA. Eighty-five percent have a blind upper esophageal pouch with a lower esophageal segment entering the trachea. The condition is recognized early by the presence of great distress, choking, coughing, and gasping at the time of the first feeding. Surgery is not an emergency and the infant should be allowed to stabilize for a few days while a proper work-up and evaluation is made. The diagnosis can be made by the passage of a catheter with or without the use of lipiodal. Barium as a

contrast medium is absolutely contraindicated. Adequate fluid therapy, including amino acids, plasma, blood, vitamins, and electrolytes should be given. Excessive sodium ion administration must be avoided. The anesthetic of choice is cyclopropane with intratracheal intubation. The surgical technic is a primary end-to-end anastomosis between the blind upper segment and the lower segment after obliteration of the fistulous tract with the transpleural or extrapleural approach from the right or left side. The right side is the approach of choice.

PEPTIC ULCER. The infant may vomit blood but more often the ulcer perforates. Both males and females are equally affected which suggests the hormonal theory as the cause. Surgical intervention is indicated for perforation, obstruction, hemorrhage, or intractable pain. Duodenal ulcers are more common than gastric ulcers. In the case of hemorrhage or perforation, there should be an omental closure of the defect and not a plication. In the pyloric obstruction group, a gastroenterostomy is the procedure of choice.

CONGENITAL HYPERTROPHIC

PYLORIC STENOSIS. Diagnosis is made by projectile vomiting of a bile-free vomitus, visible peristaltic waves, palpable pyloric tumor, failure to gain or loss of weight, reduction in stool or obstipation. This condition should not be considered an emergency. Proper parenteral fluid therapy should be attained and preoperative gastric lavage should empty the stomach. Barium is contraindicated. No premedication is advised. The anesthetic of choice is cyclopropane. The operation of choice continues to be the pyloromyotomy procedure of Fredet-Rammstedt through a transverse gridiron incision.

CONGENITAL ATRESIA IN THE INTESTINE AND COLON. This condition occurs between the fifth and tenth week of fetal life. The usual symptoms are bile-stained vomitus, absence of stool or a peculiar type of meconium, abdominal distension, dehydration with weight loss, diminution of urinary output, hemoconcentration and eventual shock with perforation of the intestine and peritonitis. The child takes food but vomits 20 minutes to 2 hours later. The longer the delay in diagnosis, the less opportunity there is for effective

surgery. X-ray of the abdomen without the use of contrast media, gives the necessary information. Intravenous fluids, plus vitamins, and a continual suction tube should be used. At the time of operation, the entire small intestine and large bowel should be investigated for multiple atresias. A side-to-side anastomosis above and below the points of obstruction is the treatment of choice. When necrosis is present, resection is necessary. No excision should be done if the atresias are multiple. Postoperative feedings of these infants should consist of a fat-free protein milk diet.

MECONIUM ILEUS. This is an intestinal obstruction due to an inspissated abnormal type of meconium produced by individuals suffering from pancreatic insufficiency. No satisfactory treatment has yet been developed.

CONGENITAL STENOSIS OF THE INTESTINE AND COLON. This condition is similar to atresia except that the lumen of the bowel is present but of small size. Practically the only method of diagnosis is X-ray study. Surgical treatment is primary side-to-side anastomosis, depending upon the

level of obstruction.

MALROTATION OF INTESTINES AND COLON. This condition leads to intestinal obstruction. It is characterized by incompletely rotated cecum, lack of attachment, along the posterior abdominal wall, or a completely rotated cecum which is mobile and unattached. These infants show vomiting, usually bile-stained material, abdominal distension, scanty stools, and subsequent dehydration and the picture of intestinal obstruction. X-ray examination is of some value but the use of barium should be avoided. However, a barium enema may be helpful. In the case of volvulus, due to lack of attachment in the mesentery, reduction is carried out by turning the small intestine in the reverse direction. In the type due to peritoneal bands obstructing the duodenum, sectioning relieves the situation.

MECKEL'S DIVERTICULUM. The vitelline duct may remain a pouch on the antimesenteric side of the ileum and is called Meckel's diverticulum. Most manifestations occur under the first year of life. The most common symptoms are hemorrhage, perforation and obstruction. These should be

treated by removal of the diverticulum. Where a diverticulum serves as a leading point in an intussusception, it should be reduced and the Meckel's diverticulum everted. If there is any evidence of damage to the large bowel wall, the diverticulum should be left behind to be removed at a later operation.

MALFORMATIONS OF THE ANUS AND RECTUM. These are classified into four general sub-types: (1) Stenosis of the anus at a point slightly above the anus. (2) Imperforate anus in which the obstruction is due to a persistent membrane. (3) Imperforate anus in which the rectal pouch ends blindly some distance above the anus. (4) Anus and anus pouch normal but with rectal pouch ending blindly in the hollow of the sacrum. The classical signs are abdominal distention, intestinal patterning, tympanites, vomiting, dehydration, and eventually respiratory and circulatory collapse are the symptoms of lower bowel obstruction. In type one, repeated dilatations may be used where necessary. If there are symptoms of obstruction, a primary colostomy is done if the pouch is 3 cm. above the anal dimple. In

those cases in which it lies lower, an attempt can be made to bring the rectal pouch down to the perineal floor. In type two, a small cruciate incision with subsequent dilatations are used. In type three, treatment depends on the location of the rectal pouch and is very similar to that described in type one. In type four, when it is associated with rectal fistula in the male, it would seem advisable to leave this until the child reaches an older age, with the exception of the recto-perineal fistula.

INTUSSUSCEPTION. The cause is always apparent in Meckel's diverticulum. Polyp of the intestine, mesenteric cyst of the small intestine, and other anomalies serve as a leading point for an intussusception. Diagnosis is made in the previously normal healthy infant who develops intermittent, colicky, abdominal pain, occasionally with initial shock, initial vomiting, appearance of a bloody mucus stool and palpable abdominal tumor. Reduction by the use of a barium enema may be tried in the first 4-6 hours of onset. Surgical intervention is necessary in the majority of cases. Before surgery, emptying of

the stomach is necessary. Pre-medication is important, and cyclopropane is the anesthetic of choice. Surgery consists of primary reduction and one should do no more than is absolutely necessary. When damage makes resection necessary, a side-to-side anastomosis with closure of the blind ends after resection is preferable. Chemotherapy is advisable.

CONGENITAL ATRESIA OF THE BILE DUCTS. This condition is diagnosed by a high degree of jaundice, a whitish, putty-like stool, fullness of the abdomen with enlarged liver and ascitic fluid. Transfusion before, during, and after operation is essential, along with Vitamin K. The entire biliary system must be explored and the operation depends upon the patent lumens.

OMPHALITIS. Infection of the umbilical stump may cause either an abscess of the abdominal wall running along the round ligaments or hypogastric arteries. Chemotherapy is the form of treatment with surgical intervention only when abscess formation occurs.

OMPHALOCELE (UMBILICAL EVENTRATION). This is a herniation of the abdominal viscera at the base of the umbilical cord. Surgery must be early and immediate. Cyclopropane or "drip" ether anesthesia may be used. Surgical technic is best carried out in two stages. At the first operation, the sac is cut free and the skin margins approximated without any attempt to repair the abdominal wall. Several weeks later a second operation closes the abdominal wall in fascial layers.

CONGENITAL HERNIA OF THE DIAPHRAGM. A newborn infant with cyanosis, dyspnea and vomiting must be suspected of having a diaphragmatic hernia. X-ray is used for diagnosis and the use of vari-um is contraindicated. Operation is immediate. The anesthetic of choice is cyclopropane. Phrenic nerve crushing is a temporary measure. The abdominal approach seems to be more advisable in the average case. Repair consists usually of closing the defect after removal of the abdominal organs from the thorax. Oxygen postoperatively is an essential.

SOME CLINICAL ASPECTS OF THE NORMAL ELECTROENCEPHALOGRAM IN EPILEPSY

By John A. Abbott, M.D., and Robert S. Schwab, M.D., Boston

Condensed from the New England Journal of Medicine

WHAT does it mean if the electroencephalogram of an epileptic patient is normal between seizures? On the one hand, the physician may have been led to believe that an abnormal electroencephalogram is highly characteristic of epilepsy. On the other hand, if he regularly refers his epileptic patients for electroencephalographic study, he forms the impression that, for a goodly portion of them, the tracings, which are almost always done between seizures, are described as normal. This may be true even for patients examined when not taking anticonvulsive medicine.

This paper is based on the study of 193 patients attending the Epileptic Clinic of the Nerve Out-Patient Department at the Massachusetts General Hospital. Attendance at the clinic is restricted to patients ten to twelve years old or older. These patients were selected from the total attendance in accordance with only two criteria: the clinical diagnosis of epilepsy should

be unequivocal; and for each patient at least one record should have been taken in accordance with a well standardized electroencephalographic procedure.

Among the 193 patients on whom this study is based, there were some from each of whom two or more electroencephalograms were recorded. For each such patient, one record was chosen as representative.

Ages at the times of these 193 tests ranged from 10 to 75 years, and the largest number of recordings were done on patients who were 17 years old.

Of these records, 40, or about 21% were normal, 20, or about 10% were borderline, and 133, or about 69% were abnormal.

At the time of the examination 31, or 77% of the 40 patients with normal and 30, or 79% of the 38 patients with abnormal electroencephalograms had received no anticonvulsive medication for at least 48 hours.

Among the patients with normal electroencephalograms the incidence of onset was higher in the third than in the first decade, whereas among those with abnormal records the reverse was true; and there was a consistently higher incidence of onset in the fourth and subsequent decades for the patients with normal records.

In analyzing the types of seizures to which these patients were subject, 40% of patients with normal electroencephalograms, as contrasted with only 10% of those with abnormal records, were subject to only one type of seizure. And, in general, the variety of seizures experienced by the former was less than that experienced by the latter.

An analysis of the frequency of seizures for the two groups shows that patients with normal records generally had fewer seizures than those with abnormal records. Thus, among the former, the largest number had about three seizures a year, whereas among the latter, the largest number had about forty-eight or more seizures a year.

Medication, as prescribed at the last visit, was checked for

all patients with normal electroencephalograms and for all those of the selected abnormal group. The daily dosage was very slight, but still consistent, smaller for all the 40 patients with normal records. Seven of the 40 patients with normal records had discontinued all anticonvulsive medicine by the time of the last visit, whereas this was true for only 1 of the 38 selected abnormal group.

A detailed analysis was made of the case data on the 8 patients who, up to the last visit, had successfully discontinued anticonvulsive medication. This analysis suggests that the prognosis for remission of seizures off medicine is favorable under the following conditions: if the patient has had no attacks in infancy; if he shows, other than seizures, no evidence of encephalopathy; if he has been so mildly disturbed and is so well endowed as to have maintained a good social adjustment despite the seizures; if he presents, at the time that withdrawal of medicine is considered, a normal electroencephalogram (preferably done while the patient is off anticonvulsants for at least forty-eight hours); and if he

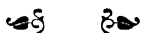
has been seizure free for a period of one to two years, with anticonvulsants gradually reduced to, and maintained at, a minimal dosage of 1 capsule or tablet of phenobarbital, mebaral or dilantin daily or every other day for three months.

The bias of this paper leads to a special emphasis on the normal record as a favorable criterion. A negative family history for epilepsy may also be prognostically favorable. Probably, too, a relatively low maximal incidence of seizures—perhaps less than about twelve seizures a year at the worst period—is favorable. Apparently little prognostic significance attaches to the age at onset for the chronic

adult epilepsy, as distinguished from attacks in infancy, the type of seizure or the relative incidence of seizures while the patient is awake and asleep. Finally, it may be added that remission of seizures off medicine is common in the late teens and early twenties.

Regarding the number of seizures while the patient is awake as compared with the number while he is asleep, whether at night in bed or during a daytime nap, one gets the clinical impression that the proportion of seizures while the patient is asleep is higher among patients with normal than among those with abnormal electroencephalograms.

SBH:KOE



NO FATS FOR BAD HEARTS

WARNING against a high-fat diet for patients with heart disease was sounded by Dr. Milton Plotz of Brooklyn at the meeting in Chicago of the American Medical Association. Deaths of 10 heart patients within seven months after being put on a high-fat diet, and much worse heart symptoms in 12 of another group of 17 within three months after being put on a high-fat diet, were cited by Dr. Plotz.

The high-fat diets had been given most of the patients as part of standard treatment for stomach ulcers. One of them was given the diet to "built him up." Ulcer patients, who have heart disease, Dr. Plotz warned, should be given frequent feedings low in fat.—*Science News Letter*, July 10, 54: 23, 1948.

SUBLINGUAL METHYL TESTOSTERONE FOR BOYHOOD EMOTIONAL, PHYSICAL AND GENITAL IMMATURITY

By Floyd E. Harding, M.D., Los Angeles

Condensed from the Journal of Pediatrics

METHYL testosterone enlarges all parts of the male genitalia before or during puberty. When small doses of it are given, however, it does not initiate the onset of puberty in a child too young for this occurrence.

In boys with unusually small genitalia, a neurosis may be caused by the fear of abnormality and by the cruelty of other children who make disparaging remarks. This condition is easily cured with testosterone without apparent harm.

CLINICAL MATERIAL. Most of the 58 patients in this study were between 7 and 15 years of age; the youngest was 1 and the oldest was 16. All had small genitalia. The fat mons frequently covered the penis, causing urination to be difficult and embarrassing. Several of the children had a neurosis due wholly or partly to the cruelty of other children laughing or making remarks about the infantile nature of their organs. Many boys were emotionally immature or physically weak. Failure in school

or poor work in spite of good intelligence was often reported. It was believed that the small size of the genitalia on examination was usually insufficient reason for therapy, unless some other physical or psychologic abnormality existed. In most children treated, two or three indications were found to be present.

METHOD OF TREATMENT. The sublingual method of administration was chosen because we believe the hormone is more effective when used in this manner than when it is swallowed. The tablets of methyl testosterone were held under the tongue or between the teeth and the cheek and allowed to dissolve slowly to obtain as much local absorption as possible. They each contained 5.0 mg. of material, and were cut in half or in fourths as necessary.

Treatment was given continuously up to 2 months, after which, if further development was required, the medication was discontinued for one month, then given another 2 months. This pre-

caution, although probably unnecessary with the small doses used, was taken in order not to upset other glandular function over too long a period.

The obese patients were given a low-caloric vitamin-rich diet made up largely of fruits and vegetables but containing sufficient protein for a growing child. The underweight children were given a high caloric vitamin-rich diet.

RESULTS. Genital development was considered satisfactory in all patients taking methyl testosterone. The medication was discontinued when the penis became large enough to be considered within the limits or normal and about average size for the height and general development of the child. The testicles stayed down better in the psuedo-cryptorchid patients, and in 4 boys with true cryptorchidism a cure was effected.

There was great variation in the rapidity of development. Some boys developed in 2 to 3 months with small doses, whereas others developed slowly with larger doses. In general the very short children or those with very small testes required longer treatment.

Methyl testosterone definite-

ly increased the rate of growth. During treatment and in the months immediately following medication, the entire group of 58 children averaged 3.2 inches of growth per year per individual. Sixteen controls, ages 8 to 15 years, of essentially the same endocrine types, were not given methyl testosterone; they grew on an average of 2.3 inches per year.

Physical improvement was frequently outstanding, especially in the weak, flabby, obese boy who was often somewhat effeminate, and in the thin child with little muscular development and stamina. There was also some improvement in other skeletal muscles; more work could be done without tiring, and physical tasks were performed with greater speed and facility.

Other noticeable improvements showed in the lessening of the feeling of inferiority and of the exhibition of emotional immaturity. The children co-operated better with parents and teachers and took more responsibility. The school work improved with lessening in nervousness and restlessness, while there was an upward trend in concentration and attitude.

Most of the children were observed for from one to 4

years following completion of treatment. They continued to develop normally. A few were given another course or two of treatment. They did well when compared with non-treated patients previously observed. Epiphyseal closure came at the expected time.

UNDESIRABLE EFFECTS. No bad effects were noted except for sexual stimulation in 3 patients who had the habit of masturbation. The tablets caused some of the boys to have a minor degree of acne. No allergy or idiosyncrasy was encountered.

DISCUSSION. Most cases of cryptorchidism, cases of abnormality of the genitalia other than smallness of size,

and most other endocrine disorders were not included in the series treated with methyl testosterone. Some boys aged 16 to 21 were seen whose genitalia did not improve to the extent of being within the range of normal size.

Anterior-pituitary-like substance appears to be better than methyl testosterone for the treatment of cryptorchidism. If APL substance is used instead of methyl testosterone, there is greater growth of the testis and less enlargement of the penis. After the testis increases in size, it produces more testosterone, which in turn causes some growth of the other parts of the male genitalia.

JPS:HBJ



GENIUSES AND LONGEVITY

GENIUSES don't die young, as a rule. Famous cases of brilliant lights snuffed out by early death, like those of Shelley, Keats, Schiller, Heine and Raphael, are exceptions, accounting for only one-half of one per cent of the world's acknowledged geniuses, declares Dr. R. E. G. Armattoo, director of the Lomeshie Research Center for Anthropology and Race Biology in Londonderry, Ireland.

Offsetting the early deaths of these young geniuses are the long lives of many other noted men, he points out. Classic instances are Michelangelo, Da Vinci, Corneille, Goethe and Newton; among the great who have died more recently at advanced ages were H. G. Wells and Max Planck. Still living, full of years and honors, are Shaw, Sibelius and Einstein.

In certain other traits, however, Dr. Armattoo found geniuses to conform more closely to popular beliefs concerning them. Among these are a high degree of self-esteem, an infinite capacity for taking pains, and an indifference to the accepted code of sex morals.—*Science News Letter*, July 3, 54: 12, 1948.

CHLOROPHYLL IN THE TREATMENT OF DERMATOSES A Report Of Forty Cases

By Wilfred D. Langley, M.D., and Winfield S. Morgan, M. D., Sayre, Pa.

Condensed from the Pennsylvania Medical Journal

A SERIES of 40 cases of dermatitis of variable cause and associated with intractable itching and burning have been dramatically and completely relieved by treatment with water-soluble chlorophyll. We have been unable to find any previous reports in the literature regarding the use of chlorophyll in the management of dermatoses.

Some of these cases were referred to this clinic because they had not responded to treatment by one or more local physicians. A number of them had been seen previously by other dermatologists. Still others had been under our own care for weeks or months before treatment with the water-soluble chlorophyll ointment was instituted.

It has been our experience that chlorophyll therapy is efficacious in relieving the subjective symptoms as well as the objective manifestations of the disease.

One of the most gratifying results of treatment with water-soluble chlorophyll was its

ability to relieve itching and burning. This effect was observed almost immediately and was usually sustained for 10 to 12 hours after the initial applications.

The objective response seen over the involved areas proved to be no less dramatic than the palliation of symptoms afore-described. In many of the acute cases, areas which were highly erythematous, swollen, and weeping before application of water-soluble chlorophyll ointment were found to be greatly improved within ten to twelve hours. This improvement was marked by a reduction in the erythema and edema. The absence of oozing after this period of time was most impressive. Chronically indurated and crusted areas treated with chlorophyll ointment one day have been found soft and free of crusts the next.

Of 40 cases treated with water-soluble chlorophyll, all experienced relief of itching and burning. Thirty-six cases or 90% showed decided improve-

ment objectively. Four or 10% were not improved.

Of the 36 cases showing response to treatment with chlorophyll, 32 or 88.8% have been completely relieved of the present attack. Four continue to improve under chlorophyll therapy.

Eight patients having bilateral involvement were used as control cases. In each instance one extremity showed decided improvement upon treatment with water-soluble chlorophyll, whereas signs and symptoms persisted as before in the extremity treated with substances other than chlorophyll, such as Burow's solution, calamine lotion, starch baths, and boric acid ointment or compresses.

Five cases were treated with the water-soluble ointment base alone, but were not improved. These later responded to chlorophyll therapy.

OUR METHOD OF TREATMENT has been as follows: We have used chloresium which consists of water-soluble chlorophyll in a hydrophilic ointment base. The involved skin area was covered with a generous quantity of the ointment, following which gauze dressings were applied. Since the ointment is water-soluble,

dressings to which it has been applied dry sooner than many other commonly used ointments having greasy bases. When the dressings become dry, usually twelve to eighteen hours after application, the symptoms may recur. We have, therefore, found it advisable to change the dressings once daily or better still to be governed by return of symptoms. When the ointment dries, some of it adheres to the skin. We have found it of value to have the patient bathe the part in a lukewarm starch bath. Occasionally we have found it useful to employ a mild soap such as basis soap or liquid detergent such as acidolate before chlorophyll ointment is reapplied. The patient need have no fears about the water-soluble chlorophyll ointment permanently coloring the skin, for it is completely removed by such measures. A word of caution must be spoken, however, about too vigorous cleansing of the already irritated skin by any method, either mechanical or by chemicals, else the beneficial effect of treatment will be easily lost. Cleansing measures in some instances had to be dispensed with because they provoked much irritation and eradicated the

benefit of the chlorophyll ointment. Where there has been extension of the skin lesion to the scalp, the ointment may be rubbed into the scalp in a generous quantity to be followed in twenty-four hours by a shampoo. In anogenital problems, a dressing may be applied to the involved areas and kept in place with a perineal binder. Following the toilet, fresh applications should be made, especially in the female patient receiving treatment to the vulva area.

In no patient in this series of dermatologic problems treated with water-soluble chlorophyll, even when it has been applied to large areas of altered skin where parenteral absorption must have been moderately great, has there been any evidence of toxicity or allergic reaction. No case was made worse by the appli-

cation of this substance either from an objective or subjective standpoint.

We cannot offer a definite explanation for the beneficial effect derived from the use of the water-soluble chlorophyll in the treatment of certain skin diseases. Possibly this substance provides some factor, which inflamed tissues need for healing. At this time we can only present the results of our series of cases with the hope that future studies will reveal the mechanism of its action.



"CHLORESIUM" is manufactured by The Rystan Company, Mount Vernon, N. Y. It is available on the market as a standard solution, an ointment, and an ophthalmic solution.

DMP:KOE



Among hospitals to participate in a recent allocation of Atomic Energy Commission funds (1.3 million) are Massachusetts General and Peter Bent Brigham (Boston) and Memorial (New York City). Office of Naval Research is administering the grants, which are mainly for cancer research.—*The A.S.T.A. Journal*, July, 35: 116, 1948.

DIVERTICULITIS OF THE COLON

By Carrington Williams, M.D. and Carrington Williams, Jr., M.D., Richmond, Va.

Condensed from the Virginia Medical Monthly

WE PRESENT a report of our clinical observations of diverticulitis of the colon and a general description of the characteristics of and recommended treatment for each type.

ACUTE DIVERTICULITIS. Simple acute diverticulitis is often spoken of as "left-sided appendicitis". Symptoms of nausea, vomiting and abdominal pain simulate appendicitis, and if the inflammation occurs in a redundant sigmoid, the findings may even be on the right side. The treatment is medical, and with rest, antibiotic and antispasmodic drugs, and dietary restrictions, the acute attack usually subsides in a few days. The presence on physical examination of an inflammatory mass which subsides under observation is presumptive evidence of diverticulitis, but the only positive method of diagnosis is by roentgenologic studies of the colon.

In the majority of cases, simple acute diverticulitis will subside completely on the proper medical regime. X-ray

examination should generally be deferred until the acute stage has subsided.

When acute diverticulitis is accompanied or followed by complications, surgical intervention is frequently indicated. In some cases conservative, non-operative therapy will suffice.

Acute perforation of an inflamed diverticulum is the worst of all complications. Fortunately it occurs in only a very few cases (about 2.5%). It may result in generalized peritonitis, with shock and death, or it may go on to walling off and abscess formation. In the first type, with generalized peritonitis, closure of the perforation is sometimes advocated, while others recommend simple drainage. In those cases where abscess formation occurs, spontaneous drainage into the rectum may occur, but more frequently it is necessary to resort to surgical drainage.

Obstruction of the colon may result from extensive acute inflammation in an area involved with diverticula. Al-

though obstruction is more prevalent with the chronic type of diverticulitis, it may be quite complete in the acute stage. Conservative treatment including gastro-intestinal siphonage, liquid diet and rest often is sufficient to relieve the obstruction. Colostomy for relief is usually not necessary in acute diverticulitis with obstruction.

Fistula formation is one of the common complications found in acute diverticulitis. The close proximity of the sigmoid colon to the bladder, especially in the male pelvis, affords an opportunity for the development of fistulous connections between bladder and colon. Vesico-colic fistula is thus the type of communication most commonly encountered. The development of such a fistula may be anticipated when a patient with diverticulitis develops urinary symptoms and is found to have pyuria. Prompt attention at this stage may prevent actual development of a fistula. Other types of fistulae which may occur in colonic diverticulitis are entero-enteric, entero-cutaneous, and fistulae into surrounding soft parts.

RECURRENT DIVERTICULITIS.
Failure on the patient's part

to follow the proper regime, or failure on the doctor's part to pursue a vigorous program of therapy for acute diverticulitis, often leads to recurrent attacks of acute inflammation. These patients usually can be managed medically.

CHRONIC DIVERTICULITIS.
The problem of chronic diverticulitis presents the difficulty of increasing intestinal obstruction, since scar formation and persistent inflammation usually develop.

The simple form of chronic diverticulitis can be handled adequately by conservative therapy similar to that used for the acute type.

When chronic diverticulitis is accompanied by complications requiring operative therapy, they present themselves usually in the form of intestinal obstruction. Often carcinoma is suggested. Obstruction results from increasing tumefaction produced by chronic inflammation with scarring, and from kinking around adhesions. When the obstruction is severe enough and persists despite adequate medical treatment, decompressive colostomy and resection of the obstructed area must be carried out.

Peridiverticulitis, with in-

flammation of surrounding viscera and even fistula formation, is not infrequently found as a complication of chronic diverticulitis. Fistulae are more likely to develop in the acute attacks with the more fulminating inflammatory reaction.

Those diseases which most commonly are mimicked by diverticulitis are:

- (1) Appendicitis
- (2) Tumor of the ovary
- (3) Pelvic abscess (tubo-ovarian)
- (4) Carcinoma of the colon.

Quite frequently the gynecologist is completely fooled by colonic diverticulitis, and the true diagnosis is discovered only at operation. Drainage of a pelvic abscess by colpotomy sometimes is followed by formation of a fecal fistula, which clears up only with resection of the involved sigmoid colon. Carcinoma of the sigmoid colon is most closely simulated by chronic diverticulitis.

DIFFERENTIATION FROM CARCINOMA. To distinguish diverticulitis from carcinoma of the colon may be almost impossible without operation, and even then doubt sometimes remains. From the X-ray standpoint, it is well to con-

sider that diverticulitis rarely exists without demonstrable diverticula. Furthermore, the involved segment is usually longer in diverticulitis than in cancer. Sigmoidoscopic examination is of limited value in the demonstration of diverticulitis or its differentiation from cancer.

The diagnosis is particularly difficult with the chronic obstructing lesions, and it must be considered that these patients all fall into the so-called cancer-age group. Gross bleeding from the rectum is another point which makes the diagnosis even more difficult. The proper attitude would be to explore the patient in whom reasonable doubt existed since most of the chronically obstructed cases must sooner or later be resected.

The association of cancer and diverticulitis is not frequent; but it must be remembered that except for the rectum, the sigmoid is the most common site for cancer of the colon, and diverticulitis also most often is seen in the sigmoid.

TREATMENT. In simple uncomplicated diverticulitis the proper treatment is medical. The proper regime should

consist of absolute rest (bed rest until all symptoms and signs have disappeared), heat to the abdomen (including diathermy and Elliott therapy), restricted diet, and mild laxation. To this can be added the use of those sulfa drugs which sterilize the bowel (sulfaguanidine, sulfasuxidine, and sulfathalidine) and of penicillin.

The indications for surgical intervention are:

1. Perforation with peritonitis.
2. Abscess formation.
3. Intestinal obstruction.
4. Actual or impending fistula formation.
5. Recurrent diverticulitis.
6. Indistinguishability from cancer.

The simplest operation is the safest procedure.



LKF:HBJ



IF THE BOMB FALLS

With the large number of burns and mechanical injuries expected, the immunization of the population against tetanus should be considered. Disruption of water supply and sewage disposal systems would suggest immunization against organisms infecting the digestive tract wherever possible along with preparations and instructions in individual water purification. The demand for blood transfusions suggests the advisability of pretyping the population and devising some method of indicating the individual's type. Considerable work is being done in the use of drugs as a protection against radiation. So far these experiments have not been conclusive, but future knowledge may well suggest the advisability of incorporating some substance in a common food such as bread. One important preparatory procedure usually ignored is the psychological preparation of the general public for such an attack. I believe this can be best handled by keeping the public informed as to the possibilities and to our capabilities to handle such disasters. Since light-colored loose clothing furnishes good protection against flash burns, the co-operation of clothing designers may be important in our plans for preparation. The special problems involved in handling casualties on the scale expected in an atom bomb attack will center on the treatment of large numbers of patients. Tremendous supplies of drugs, dressings, etc., will be required. One item which will be used in vast quantities will be whole blood. The number of blood transfusions required will be fantastic. The number of blood typings necessary will require some plan whereby laymen trained in blood typing can be utilized.—*Delaware State Medical Journal*, June, 20: 122, 1948.

EXPERIENCES WITH A NEW SYNTHETIC ANALGESIC, AMIDONE

By Roy J. Popkin, M.D., Los Angeles

Condensed from the American Heart Journal

A NEW synthetic drug known as Amidone (chemically, 6-dimethylamino-4, 4-diphenyl-3-heptanone hydrochloride) gives promise of being of value in controlling ischemic pain in peripheral vascular disease.

We gave Amidone to a series of 18 patients suffering from occlusive arterial diseases associated with severe ischemic pain. All these patients suffered from one or more of the following symptoms: rest pain, nocturnal cramps, intermittent claudication, paresthesias, ulceration, and gangrene. All had been observed for considerable periods of time. Extensive therapeutic procedures had been instituted at one time or another. Most of these patients were hospitalized.

Amidone was administered orally in 5 to 15 mg. capsules or tablets, using dextrose as a filler. Five mg. in each cc. of distilled water were used for intramuscular administration. Placebos were given in one case only, as these patients had received considerable

medication, especially narcotics, prior to Amidone therapy.

RESULTS. Relief of pain was usually prompt and satisfactory. Therapeutic effect was apparent within 40 minutes of the oral or parenteral administration of Amidone. Relief lasted as long as 16 hours. Rest pains, pains of ulceration and gangrene, paresthesias and nocturnal cramps were relieved. Intermittent claudication and pains of dependency and weight-bearing were unaffected.

A sedative action was apparent at night. Patients slept soundly and awoke refreshed. There was no euphoria. Patients stated that they knew pains were present but they seemed to belong to someone else. One patient stated that his leg, which previously had given him considerable pain, felt detached from his body. Prior to the beginning of Amidone therapy, a considerable amount of narcotics had to be used in this case.

There was no addiction or increase in tolerance. As the pain subsided, Amidone was

given less frequently, and in a few cases it was discontinued completely. One patient received over 2,400 mg. within a period of 2 months. A mid-thigh amputation was performed. After operation, the pain was relieved and Amidone was discontinued. The patient asked for it, stating that she missed it. Twenty-four hours after the drug had been stopped the patient had completely forgotten about it.

Pain relief was not due to any increase in peripheral arterial circulation. Blood pressure, respiration, heart rate, oral temperature, skin temperature, skin color, oscillographic determinations, urine, blood count, and prothrombin time were not affected. Constipation was a rare complaint. Pupillary changes did not occur.

SIDE-EFFECTS. Unpleasant side reactions were few when patients were recumbent. Reactions in the erect positions were frequent, and ambulatory patients were usually unable to take the drug. These side reactions consisted of

light-headedness, nausea and vomiting, but not true vertigo. They were present whether the eyes were opened or closed. There was no nystagmus. Patients stated that they felt as if they would fall over if they were pushed gently.

Severity and persistence of these symptoms usually varied directly with the size of the dose, although 5.0 mg. were sufficient to bring on severe symptoms in a few cases. In occasional instances, nausea was present even in the recumbent position. Usually, the more nausea, the less effective was the analgesia. We found that ingestion of Amidone with meals was more likely to bring on nausea than administration between meals.

Two patients also suffered from bronchial asthma at the time of the administration of Amidone. Although the asthma was not aggravated, these patients complained of difficulty in expectoration. There appeared to be an inhibition of the cough reflex.

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THE CLINICAL USE OF PENICILLIN IN OIL AND BEESWAX IN PEDIATRIC PRACTICE

By Frederick M. Adams and Elizabeth G. Fisher

Condensed from the Bulletin of the Johns Hopkins Hospital

IF ONE is able to maintain a satisfactory therapeutic level of penicillin for twenty to twenty-four hours by injection of penicillin suspended in peanut oil and beeswax (P.O.B.) its clinical application in pediatrics at once becomes apparent. As is well known, in children the associated symptoms of vomiting and failure to take fluids with almost all pyogenic infections sometimes make sulfonamide administration difficult. For this reason, many children have to be hospitalized for the sole purpose of aqueous penicillin therapy. The economic and therapeutic value of being able to treat these children at home with single daily injections of P.O.B. is quite obvious. With these objectives in mind a clinical study of P.O.B. was carried out in an active pediatric dispensary.

METHOD OF STUDY. Between January 1, 1947, and April 15, 1947, one hundred consecutive cases of pneumonia were treated with P.O.B. These patients were completely

studied with cultures, X-rays, and penicillin blood assays. For the most part, they were treated as ambulatory patients, necessitating daily visits to the clinic for their P.O.B. injections and follow-up care.

Throughout the study crystalline sodium penicillin suspended in peanut oil with 4.8% (w/v) bleached beeswax was used. This was supplied in ten cc. vials containing 300,000 units per cc. All patients received 5,000 units per pound at each injection. All the injections were given intramuscularly, deep into the gluteal group of muscles.

Treatment was carried out with the use of single daily injections until such time that the patient's clinical response was adequate and the temperature had returned to normal. Two further daily injections were then given and the child's course followed for one more week.

THE PNEUMONIA SERIES. There were 64 males and 36 females ranging in age be-

tween two months and eleven years with 57 of the children under two years of age. Sixty-five cases with localized homogeneous consolidations were classified as lobar pneumonia, while 35 with scattered patchy diffuse infiltrations were classified as bronchopneumonia.

Cultures for pathogenic organisms, the great majority of which were recovered from the nasopharynx yielded *Pneumococci* in 78% of the cases.

CLINICAL RESULTS. The clinical results of treatment were classified as either good, poor, or as failures. A good result entailed an adequate response, with complete subsidence of the pneumonic infiltration along with clinical improvement in a reasonable length of time, with the only chemotherapeutic agent being P.O.B. The response was considered rapid when the patient attained a normal temperature within 48 hours and was relatively asymptomatic within four days. All other patients who attained an ultimate good result, but in a longer time, were considered to have a slow response.

Classified as poor results are those patients in whom

there appeared to be an inadequate response to P.O.B. in the length of time that was required to bring the infection under control, or in which some complication, such as otitis media, developed while the P.O.B. was being given. Cases were classified as failures when sulfadiazine or aqueous penicillin had to be given after the P.O.B. had failed to bring the pneumonia under control, or in which there was an exacerbation of the pneumonia.

Ninety-two per cent of the children had a good result with 81 responding in a rapid fashion and eleven slowly. There were four poor results and four patients that were classed as failures. There were no deaths in the entire group. In 96 cases, excluding the four failures, the temperature dropped to normal and remained there within an average of 27 hours, with a range between 12 and 120 hours. This group of 100 patients received an average of 4.5 injections per patient.

POOR RESPONSES TO TREATMENT. Of the four patients for whom the results of treatment were considered to have been poor, all had rapid clearing of the original pneumonia.

Nevertheless, these were considered to have shown a poor response because they developed otitis media under treatment.

In the four cases recorded as failures there was some complicating factor on which the apparent failure of treatment might well be explained. However, it is considered that the treatment failed to accomplish the desired result in these patients.

COMPLICATIONS. Non-suppurative catarrhal otitis media occurred as a complication in seven of the 100 cases of pneumonia. Suppurative otitis media was seen in seven of the patients. In general, it was found that when otitis media complicated the pneumonia, the treatment with P.O.B. had to be continued for two to three days longer than when this complication was absent.

Atelectasis of a single lobe of the lung occurred definitely in two patients and was questionably present in two others.

A fairly definite interlobar empyema came on while one patient was being treated with P.O.B.

OTHER INFECTIONS TREATED. Several other types of infections were also treated with

P.O.B., but inasmuch as the bacteriologic workup was incomplete, only clinical impressions are available. There was a total of 80 such infections treated, the results of which are tabulated in Table I.

The results, in general, were quite satisfactory, particularly in regard to the 27 cases of suppurative otitis media, nine of which had failed to respond to sulfadiazine therapy. With only one exception the aural discharge stopped within two to three days after the institution of P.O.B. therapy and the tympanic membranes healed rapidly. Four to five days of P.O.B. injections were sufficient to bring about these results.

P.O.B. significantly reduced the duration of symptoms in ulcerative stomatitis. Within 24 to 48 hours after the first injection these children showed marked improvement. Three daily injections were usually all that was necessary.

REACTIONS TO P.O.B. Thirty-five of the children were tested for sensitivity two to four months after they had been treated with P.O.B. Each child received an intracutaneous injection of about 100 units of aqueous penicillin G

Table I
Infections Treated With P. O. B.

Disease	Results		
	Good	Poor	Failure
1. Suppurative otitis media	17	0	1
2. Suppurative otitis media Sulfadiazine resistant	9	0	0
3. Severe Pharyngitis	10	1	0
4. Severe Pharyngitis and otitis media	7	2	0
5. Ulcerative Stomatitis	14	2	0
6. Furunculosis	2	1	0
7. Cellulitis	4	0	0
8. Suppurative Adenitis	4	0	0
9. Peritonsillitis	2	0	0
10. Conjunctivitis—Non-specific	2	0	0
11. Gonorrheal Vaginitis Sulfadiazine Resistant	2	0	0
Total	73	6	1

and a similar injection of the peanut oil-beeswax vehicle. At the same time he was given an intramuscular injection of the same dose of P.O.B. previously used for daily treatment of his infection. In this group of 35 children there was only one questionable allergic reaction, the remaining 34 children elicited no allergic response, and all the intracutaneous tests were negative.

SUMMARY. 1. One hundred and eighty children with various acute infections were treated, as out-patients, with penicillin suspended in a mixture of peanut oil and beeswax.

2. There were 100 consecutive cases of pneumonia, 32 of which occurred in infants under twelve months of age. The results achieved were quite satisfactory, with 92 good responses, four poor responses, and four failures.

3. Twenty-nine cases of suppurative otitis media, nine of which proved to be sulfadiazine resistant, were also treated. There was only one failure in this group.

4. The penicillin blood levels obtained by this method of injection were extremely variable.

5. Two instances of mild local inflammatory reaction at the site of injection were en-

countered. Both cleared 696 injections. spontaneously in three to four days time without abscess formation.

6. There were no allergic reactions to the injections in this entire series of 180 patients, who received a total of 7. No instances of acquired sensitivity to penicillin or the peanut oil-beeswax vehicle could be demonstrated by subsequent injection of these products two to four months later.

KAE:KOE



MEDICAL OFFICER EXAMINATION ANNOUNCED

The U. S. Civil Service Commission has announced an examination for filling Medical Officer (Rotating Intern and Psychiatric Resident) positions in St. Elizabeth's Hospital, Washington, D. C.

Medical Officers (Rotating Intern) are paid \$2,200 for the first year and \$2,400 for the second year. Medical Officers (Psychiatric Resident) are paid from \$2,400 to \$4,100 a year, depending upon the amount of approved post graduate training the applicant has completed. Appointments are open for July 1, 1949. Internships consist of two years of rotating service, and Psychiatric Residencies consist of one to three years in psychiatry. To qualify for Internships applicants must be third or fourth year students in an approved Medical School; however, they may not enter on duty until they have successfully completed the full course of study. Applicants for Psychiatric Residencies must be graduates of an approved medical school, with the degree of doctor of medicine, and, in addition, they must have completed an approved internship or must now be serving such an internship. No written test is required for the Medical Officer positions. Details about the requirements are given in the examination announcement.

Interested persons may secure information and application forms from the U. S. Civil Service Commission, Washington 25, D. C., from most first- and second-class post offices, and from Civil Service regional offices. Applications will be accepted until further notice in the Commission's Washington office.—*U. S. Civil Service Commission.*

OFFICE MANAGEMENT OF CORNEAL FOREIGN BODIES

By Maurice Hauser, M.D., Detroit

Condensed from the Alexander Blain Hospital Bulletin

FOREIGN bodies in the cornea can be satisfactorily managed by the practitioner if certain fundamentals are followed. To those who treat their own eye patients, the following procedures are recommended.

One drop of ½% pontocaine or 2% butyn is instilled onto the lower conjunctival surface and the patient is told that the medicine will itch or burn for a few seconds. This procedure is repeated in one minute. Cocaine is not used because it delays healing of the corneal wound. The patient soon learns that he can open his eyelids without pain, and then his visual acuity is recorded. This is important to the patient, his employer, the insurance company and to the doctor. The patient is then placed supine on any type of examining table and one drop of 1% aqueous fluorescein is instilled, as well as another drop of pontocaine or butyn. Gentle irrigation with boric or normal saline may be carried out at this time, but it

is not necessary. The patient is then asked to open both eyes and look at some spot on the ceiling, and the examiner should not obstruct the patient's view. The involved cornea is then inspected with good light and a magnifying lens (+6:00 or +8:00 sphere is best) or a binocular loupe, if one is available. Some times a foreign body is not present, but a green dot or green line is visible (fluorescein stain). This means that the corneal epithelium was scratched by the foreign body, but it did not stick on the cornea (one must be sure the foreign particle is not under the lid), and all that is needed is enough topical anesthesia to keep the patient comfortable for 12-24 hours, after which time healing will have occurred. An eye patch aids in healing and usually adds to the patient's comfort.

If a foreign body is embedded in the epithelium, several more drops of topical anesthesia are added as necessary. A clean moistened applicator is then gently touched

to the corneal margin to demonstrate to the patient that he will feel no pain. This enables him to relax before the removal procedure is started. Any type of self-retaining lid speculum can now be inserted without danger, or an assistant may gently hold the lids apart. A two or five cc. syringe, without the plunger, attached to a sterile 25-gauge needle serves as an excellent eye spud. With good light and a binocular loupe (or magnifying lens in the operator's free hand) the foreign matter (and rust ring if present) can safely be removed from any area except the pupillary area. If this latter vital area is involved, it is suggested that only the foreign body be removed, because the inexperienced operator will do some damage to Bowman's membrane when rust is removed, and this in turn will impair the final visual result. It is important to remember that nature is an excellent healer, and will in most cases expell an entire superficial foreign body and rust ring after five, ten or 15 days, during which time the patient would be disabled.

I do not recommend the "nature cure," but only wish

to emphasize that too much should not be done to the pupillary area. If, after one has removed a foreign body and feels some fine rust debris remains, a 2% silver nitrate solution may be applied with a cotton applicator directly to the small corneal area involved, including the pupillary area. The epithelium becomes edematous and may then be lifted off with the described syringe-needle eye spud, or be left alone, for after a silver nitrate application, nature will slough it off in 24-48 hours and allow healthy epithelium to regenerate.

After the foreign body has been removed, the conjunctival sac is irrigated with boric or saline and several drops of 1% homatropine are instilled, depending on how much epithelium has been destroyed and a patch is placed over the eye. (Cycloplegic dilation of the pupil is believed to increase the nutrition of the cornea and so homatropine is used in all cases except elderly ones who have a shallow peripheral anterior chamber and in such individuals homatropine is omitted because of the danger of precipitating an acute glaucoma.) Liquid topi-

cal anesthesia (5 cc. of butyn or pontocaine) is recommended for home use as often as necessary for pain. Nembutal, 1.5 grs. for the first night will enable the patient to get a bit of sleep. Re-examination the next day usually reveals complete healing of small epithelial defects, and the patch is discontinued when no fluorescein stain is retained. Routine antiseptics, such as oxycyanine of mercury (1:5000); aqueous Zephiran (1:1000) diluted 1:4 with dis-

tilled water: penicillin drops (50,000 units per cc. of normal saline); phemerol; 30% sulfacetamide and others are all quite satisfactory and indicated if the conjunctiva does not appear clean. Most pieces of emery that hit the eye are hot and aseptic. The 5% sulfathiazole ointment is very good, but should not be used if the silver nitrate regime was employed because these two drugs are incompatible. Final vision is recorded before the patient is discharged.

FOH:RDD



\$16,000 NEW GRANTS FOR VITAMIN STUDIES

New grants-in-aid, totalling \$16,000, were awarded recently to scientists at four universities for vitamin research, according to an announcement of The National Vitamin Foundation, 150 Broadway, New York.

The new investigations involve eye health, the nutritional status of school children, the relationship between pyridoxine (Vitamin B₆) and fat metabolism, and the effects of time elements on the utilization of water soluble vitamins, according to Dr. Goodhart. The new grants bring to \$126,320 the amount appropriated by the Foundation for nutrition research since March 1946.

Universities receiving the grants are Western Reserve University, School of Medicine, Cleveland, Ohio; University of Vermont, College of Medicine, Burlington, Vt.; Massachusetts Institute of Technology, Cambridge, Mass.; and the University of Southern California Medical School, Los Angeles, Calif.—*Release, National Vitamin Foundation.*

TESTOSTERONE IN THE TREATMENT OF ADVANCED BREAST CANCER

By Howard W. Jones, Jr., M.D., Baltimore

Condensed from the Southern Medical Journal

FIFTY advanced cases of cancer of the breast have been observed for at least 3 months while under treatment with testosterone.

Testosterone propionate 300 mg. a week in divided doses was used. Ten cases had extra-skeletal metastases and in two of these dramatic improvement has been noted. Eight of the ten cases showed a slight improvement for a short period and then steadily progressed while under therapy.

Five patients with skeletal metastases were studied. Three of these had improvement in pain and in the X-ray appearance of the lesion. In other cases, there was marked relief of pain, although the lesion showed steady progression.

Experience is as yet too limited to permit conclusions

regarding the place of testosterone in the treatment of advanced breast cancer. It seems reasonable to us initially to prefer high voltage roentgen therapy when the lesion is localized. On the other hand, in roentgen failures and where the disease is generalized, it is our belief that a trial of testosterone is indicated.

Our experience indicates that metastatic bone disease responds more favorably than soft tissue involvement.

Masculinizing effects from the testosterone were noted only in one instance. This patient had received 300 mg. weekly for 6 months. Hirsutism, enlargement of the larynx, acne, enlargement of the clitoris have all been noted to some degree. Discontinuation of therapy relieves all symptoms after about 3 weeks.

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(*Southern Medical Journal*, January, 41: 4-11)

LKF:CBH



Nothing is achieved before it be thoroughly attempted.—*Sir Philip Sidney*

THE PRINCIPLES OF THERAPY IN ALLERGIC DISEASES

By W. C. Spain, M.D., New York City

Condensed from the Southern Medical Journal

THIS paper deals with the respiratory forms of allergy. There are no new or startling methods presented, but it is an attempt to analyze and classify those procedures found to be of value in our experience. The only directly effective treatment is prevention.

A.—PRECLINICAL PHASE. This period may be brief or may exist for many years before the development of clinical symptoms. The capacity to become allergic may be inherited. In this preclinical phase the individual may not yet have acquired his antibody-antigen mechanism; hence, the skin testing procedure is useless; or he may have developed his antibody-antigen mechanism, but not have experienced sufficient contact with his specific exciting agent to show clinical symptoms. Skin tests may show positive reactions far in advance of clinical sensitization.

Treatment should consist in the avoidance of the common

offenders, such as feathers, kapoc and cotton in bedding, household pets, and damp and dusty habitations should be avoided. Any infected lymphoid or tonsillar tissue should be removed.

B.—CLINICAL PHASE. In practically all the cases where the offenders are the airborne inhalants and in one-half the cases where foods are the cause, the eliciting agents can be identified by the development of positive skin tests.

It is not enough to mention casually to the patient the items to be avoided. He must know for example of the many uses of eggs and of their occurrence in many food mixtures. Every patient should be warned against continuing indefinitely a restricted diet without proper medical supervision. Restricted diets should be used cautiously in the undernourished and should assume second place to the diet necessary in nephritis, diabetes or intestinal disturbances. Adequate vitamin intake should be provided.

There are three forms of therapy. (a) Surgical removal. In bronchial asthma approximately one-third of the cases are infective in origin. Hyperplastic polypoid changes in the mucosa of the nose and paranasal sinuses should be removed by the Caldwell-Luc operation. In the child the lymph tissue of the upper respiratory tract should be removed surgically. (b) Irradiation therapy. Surgical removal sometimes is not possible. In such cases radium therapy is indicated. Children are given an average of four treatments, one a month, with an applicator containing 50 mg. of radium sulfate for a period of $8\frac{1}{2}$ minutes on each side of the nasopharynx. The principle of avoidance and escape, that of removal of the patient to another section of the country, should be used with care and discrimination. (c) Antibiotic agents. Penicillin has been used in various forms and by various routes. Generally, the results have not been encouraging. Reports that sensitivity to penicillin may be closely associated with sensitivity resulting from fungus infection are made by Peck. Penicillin is apparently a potent sensitizer. An attempt at the union

of antibody and antigen by the development within the individual of an increased degree of tolerance to the antigen or offending factor has been tried. This is done by the administration of the offending agent, usually in extract form, by hypodermic injection at regular intervals over a period of time. (d) Antihistaminic-like substances. Where the union of antibody and antigen cannot be avoided, an attempt is made to modify the effect of the consummated union by blocking or diminishing the effects of the histamine-like substances formed. Some of these drugs are benadryl and pyribenzamine. These are useful against the edema, the itching, of urticaria, poison ivy, and are helpful in hay fever. There has been a disappointing result in asthma. The undesirable side effects are lassitude, weakness, mental sluggishness and dizziness.

Measures of the preventive type, early recognition, simple avoidances, immunizing injections offer the greatest benefit. The anti-histaminic drugs through their effects are pushing closer to the basic and fundamental sensitization phenomena.

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MANAGEMENT OF DIABETES MELLITUS: AN ANALYSIS OF PRESENT-DAY METHODS OF TREATMENT

By Herman O. Mosenthal, M.D., New York City

Condensed from the Annals of Internal Medicine

A COMPLETE life span, full activities and freedom from any physical or mental impairments are possible for the diabetic today. All diabetics do not reach this goal, but many of them do. The problem before us is: how should we manage diabetics to keep them in normal health?

The diabetic state of any patient may change from month to month, or year to year, and a form of treatment which is beneficial at one time, may be distinctly harmful at another. No single system of diabetes control meets all situations at all times.

CALORIC REQUIREMENTS. Suitability of the caloric intake must be judged by the weight of the patient. Fewer calories than those deemed requisite on scientific grounds are nearly always sufficient. Leanness in all human beings is conducive to longevity and in addition it offers the diabetic the possibility of amelioration of his disease.

CARBOHYDRATES. Sugar (or

sugar-containing foods) should be avoided since their ingestion results in an explosive rise of blood sugar that puts a fluctuating strain upon carbohydrate metabolism to which the diabetic does not respond, either with or without insulin. For psychologic adjustments, especially in children, desserts or soft drinks may, on occasion, be substituted for the equivalent of starchy food in the diet, or compensated for by supplementary doses of insulin. A diet satisfactory for an indefinite period may be provided by a daily intake of 150 Gm. of starch. This amount allows for one slice of bread for each of four meals, one helping of the starchy, 20 per cent vegetables, e.g. potato, rice, macaroni; one glass of milk; a helping of the 10 per cent vegetables, onions, carrots, beets, etc., and two helpings of the 10 per cent fruits, e.g. oranges, grapefruit, besides the 3 per cent vegetables and the foods containing protein

and fat only. Such a diet may be regarded as a normal carbohydrate diet.

High carbohydrate diets containing 250 to 300 Gm. of carbohydrate, as advocated by some clinicians, for universal use in diabetes, undoubtedly are applicable to growing children and those engaging in hard manual labor. However, in most adults such diets tend to result in obesity and their control by insulin is more difficult than with a lower starch intake.

PROTEINS. The integrity of the body depends upon an adequate assimilation of proteins. A diet deficient in protein results in degenerative changes in the kidneys and presumably other tissues, in anemia and in hypoproteinemia. Degenerative lesions of arteries precede the deposit of cholesterol in the production of arteriosclerosis and it is possible that insufficient protein may be partly responsible for the more frequent presence of arteriosclerosis in diabetics than in normal persons. Protein deficiency may have a dual origin in the diabetic, through a scant intake and because of insufficient insulin. It has been shown that protamine zinc insulin brings

about far better results in pulmonary tuberculosis complicating diabetes than does unmodified insulin. The reason for this is that each dose of unmodified insulin checks protein destruction and loss for four hours only, whereas every injection of protamine zinc insulin accomplishes this for 24 hours. Thus, for the maintenance of health and strength and for the prevention of many of the complications of diabetes the preservation of the body proteins is of great importance.

FATS. A high fat intake is accredited with diminishing carbohydrate tolerance and with the production of arteriosclerosis. Both of these drawbacks deserve consideration. On the other hand, a certain amount of fat is a necessary nutrient. The provision of fat soluble vitamins and of calcium can be accomplished only by certain fatty foods.

ALCOHOL. Alcohol is a valuable form of food in diabetes. It is a good source of calories; it does not form sugar; it has so-called anti-ketogenic properties. The alcoholic beverages containing sugar, especially beer, champagne and cocktails, should be avoided, while whiskey, brandy, dry

wines and others free of sugar may be taken as desired.

BLOOD SUGAR. Some plans of diabetes management call for a blood sugar always at normal levels, others allow intermittent hyperglycemia, while the free diet school pays little or no attention to the sugar in the blood. From the many clinical and experimental observations it appears that each of these proposals is applicable in certain types of diabetes.

A low blood sugar persistently maintained will promote the healing of hydropic lesions in the pancreatic islets. It is thus shown that hydropic degeneration is reversible. Little is known about the occurrence of such changes in the human pancreas. However, the rehabilitation of the pancreatic function in diabetes of recent origin whether in children, the obese or after a particular insult, e.g. an acute infection, points to a restoration of the beta cells in the islands of Langerhans. Such types of diabetes should be accorded the most painstaking care and a normal blood sugar should be maintained in them for a period of weeks after the insulin requirement has ceased to diminish or the tolerance to

ingested carbohydrates no longer increases. When the insulin need is less than 30 units, a purist objective should be continued for reasons given in the next paragraph.

When all the beta cells in the pancreatic islets have been destroyed without hope of bringing them back to activity then a perfect control of the blood sugar does not benefit pancreatic function. How to judge this state of affairs in patients is a difficult problem. The only available guide at the present moment is the knowledge that after total pancreatectomy in man the insulin requirement is not more than 30 to 40 units a day. When this amount or more of insulin becomes necessary for the effective control of chronic diabetes than the clinician is justified in assuming that the pancreas has ceased producing insulin. Under such circumstances the middle of the road pattern of intermittent hyperglycemia appears warranted. Hyperglycemia in itself does not impair immunity, has little or nothing to do with the diabetic's state of resistance or susceptibility to infection, does not inhibit the growth of tissue culture, does not inter-

fere with the healing of wounds or the recovery from infections, and promotes the metabolism of glucose. Moreover, there is some evidence that a concentration of blood sugar greater than normal is necessary for the utilization of carbohydrates in diabetics. Consequently, it would appear that hyperglycemia not associated with glycosuria, is objectionable only insofar as it has an unfavorable effect on the pancreas. This, in practice, would apply only to recent diabetics who have hydropic lesions, which are reversible, and to those chronic diabetics who have retained some insulin-producing islet cells—that is have an insulin requirement of less than 30 units.

HYPOLYCEMIA Hypoglycemic, often called insulin, reactions result from a deficient supply of glucose to the brain. The viability of the tissues of the central nervous system depend upon the presence of glucose in the blood. The lesions in the fatal cases are severe: petechiae and extensive cerebral hemorrhages, large areas of encephalomalacia and cyst formation. It is self-evident that in diabetics who are subject to transitory

hypoglycemic episodes, the morphologic pathology cannot be determined. However, in experimental animals this can be done and months after recovery from hypoglycemic reactions, areas of demyelination, encephalomalacia and glial reactions are found.

All this leads to the conclusion that any hypoglycemic reaction, however, mild, may entail petechial or larger hemorrhages that are prone to heal and leave no clinical effect, though some damage necessarily remains and may be cumulative with recurrent attacks. Not only the brain may be thus involved but other tissues as well. I am thinking particularly about the eye grounds and the so-called diabetic retinopathy. Every bit of evidence at hand points to the damaging effect hypoglycemic reactions probably have.

GLYCOSURIA. A moderate glycosuria, like hyperglycemia, is harmless when no functioning pancreatic tissue remains. The middle of the roaders recommend that there be no more than 10 to 20 Gm. of sugar in the urine per day and that the glycosuria be intermittent. This is a sane, realistic recognition of the fact that diabet-

ics are human beings and that the time and worry entailed in keeping the control of blood sugar and urine every hour of the day, every day of the year, is often not compatible with normal living. In some cases, especially elderly individuals, a constant glycosuria becomes a necessity because of hypoglycemic reactions at inordinately high blood sugar levels; in such instances the glycosuria should be maintained at a level of less than one per cent. Whenever glycosuria is sanctioned, special care must be exercised to check polyuria.

Polyuria, loss of fluid and resulting desiccation have a far-reaching effect on the body economy. It is well known that life without fluid is a matter of hours, while life without food lasts for days. In 1860 Weir Mitchell showed that in frogs, hyperglycemia

in itself had no effect upon the ocular lens, but when the excess of sugar was supplemented by desiccation, rapid formation of cataract took place which promptly disappeared when the frogs were immersed in water.

The interpretation of the free diet plan generally entertained by doctors is to allow all foods while insulin is administered. The teachings of Tolstoi have engendered the idea that the kind and amount of daily food may be adjusted to the patient's desire of the amount and that limitless glycosuria is of no consequence while the diabetic receives protamine zinc insulin. Such a plan of treatment results in polyuria, pruritus vulvae and other symptoms of diabetes. The free diet plan carried out according to lax and liberal interpretations is a menace to the diabetic patients.

KAE:KOE



Five benefits and services administered by Veterans Administration helped Howard Edward Gurney, 23-year-old World War II veteran, rise from his pre-war job as newspaper delivery boy to his present position as sales manager of a Southern radio station.

VA provided him with hospitalization, tests necessary to obtain a High School Equivalent Diploma, advisement and guidance, schooling under the Vocational Rehabilitation Act (Public Law 16), and on-the-job training under Public Law 16.—*Release, Veterans Administration, Washington 25, D. C.*

ACUTE INTUSSUSCEPTION IN CHILDHOOD

By Brenda Morrison, M.D., and Donald Court, M.D., Newcastle, England

Condensed from the British Medical Journal

OUR detailed study of 100 children treated for acute intussusception has revealed certain facts which we believe will help the family doctor as well as those responsible for treatment.

Time is an important and vital element in all disease. Of the 100 cases there were 83 in which accurate time intervals were known. Of these, 66 were seen within the first 24 hours, but only about half of the patients were admitted to the hospital within that period. Of the 80 seen within 48 hours, only 53 had reached the hospital by the end of the second day, while the admission of the remainder was not completed until the seventh day. This delay is culpable in view of the increasing mortality after the second day. It suggests that the problem of acute intussusception is concerned primarily not with improving the methods of treatment but rather with the ability to suspect this disease within the first 24 hours and ensure prompt admission to the hospital.

When one is faced with a child who may have intussusception, the first and most important step is to take a detailed history of the illness from the mother or from someone who has been with the child all the time. We consider this so important that we send for the mother if she does not accompany the child to the hospital, even though she may be many miles away.

At the beginning the physical signs alone may not be sufficient to indicate the need for admission to hospital. The diagnosis should not be delayed until the discovery of an abdominal tumor, as its detection may require a level of experience which comes only from frequent and regular contact with the disease in a large hospital.

During the first 24 hours the textbook picture of intussusception (sudden onset, colicky pain, collapse, passage of blood by rectum, palpable tumor) was present in only 39 of our 100 cases. Hence a detailed study of the clinical

picture presented by our cases in the first 24 hours is important.

EARLY CLINICAL PICTURE. In 82 cases the health and behavior in the preceding week had been completely normal, and the onset of the disease was sudden and unexpected. Almost always the parents were able to give the exact time when the initial vomiting, screaming attack, or collapse occurred. In the remaining 18 precise time of onset was blurred by a few days of respiratory, gastro-intestinal or other infection, though even here careful inquiry revealed a sharp change in the symptoms consistent with the beginning of the bowel invagination.

Pain in one or more of its varied expressions was the presenting symptom in 55 of the children; vomiting in 34; and collapse in 5. The spontaneous passage of obvious blood from the bowel was the first indication of the disease in only 4 cases. The remaining 2 cases started with a stubborn refusal to feed.

The spasmodic nature of the pain is a constant feature. Distress is often severe during the spasms, and in over half the cases there was also strik-

ing pallor. Between the spasms the child lies quietly, as though exhausted, and often sleeps. As the condition worsens the paroxysms tend to become more frequent.

Vomiting occurred in 88 of the children in the first 24 hours. It is usually an early and often the presenting symptom. In the week before the disease started, 96 of our cases had normal stools and 4 a mild diarrhea. After the onset only 8 had complete constipation, and they were all admitted on the first day. The passage of apparently normal stools was common. Unless early treatment has taken place, however, abnormal stools are eventually passed in most cases.

Spontaneous passage of blood, though considered to be the cardinal diagnostic feature of acute intussusception, was completely absent in 24 of our cases, 13 of which were admitted to hospital on or after the third day. In only 56 cases was blood passed during the first 24 hours. It is such a disturbing event for the parents that it is unlikely to be disregarded.

The physical examination can be conclusive, but during the vital first day of the illness

it may yield little evidence. Although obvious constitutional disturbance was present after admission in 80 cases, the proportion of babies who do not seem to be particularly ill between the spasms must be higher when first seen by the family doctor. The positive signs are those of shock, and those caused by the local changes in the abdomen.

In our cases some rise in temperature was the rule, even in the first day of the disease; in one-half of them it was as high as 100 to 104 degrees Fahrenheit. Fever cannot therefore be adduced as evidence in favor of infective gastro-enteritis.

In a vigorous child the abdomen can be difficult to palpate because of the strength of the muscles and the resistance induced by tenderness. Once obstruction is established the distension may make it difficult to feel a mass. On the other hand, in a collapsed baby the tumor may be felt and handled with the greatest of ease and little or no protest. It must be emphasized that ease of palpation varies greatly from case to case, and if the history is suggestive, admission should never be delayed until the tumor has been

felt. It is often helpful to examine the abdomen with the baby in the prone position, on its hands and knees, or on the mother's lap. Localized tenderness over the tumor is usually present.

Though a tumor was felt in 88 of our cases, the difficulties have been stressed in order to emphasize the danger of waiting for its detection before the child is sent to the hospital. Distention and visible peristalsis are grave signs, as they denote an established obstruction.

Rectal examination can give information in three main ways, and should never be omitted: (1) The presence of blood on the finger or its passage after the examination; (2) The direct palpation of the apex of a low intussusception; and (3) the empty, even ballooned, condition which is present in many cases.

We feel that diagnostic barium enemata are hardly ever required for the diagnosis of acute intussusception. A detailed history with careful and, if need be, repeated examination will provide the answer in almost every case. Where circumstantial evidence is strong but conclusive

proof is lacking, a laparotomy under modern hospital conditions adds little to the risk while leading to accurate diagnosis and prompt treatment.

PRE- AND POSTOPERATIVE TREATMENT. We transfuse any child showing evidence of collapse or dehydration or of established obstruction. Serum or plasma is given initially—approximately 100 ml. for an infant below 9 months and 150 ml. for those between 9 and 18 months. The aim is to get the child as fit as possible before operation.

In the ordinary course of events, after a successful reduction, the drip can be discontinued 12 to 24 hours after operation; but when there has been much vomiting or any abdominal distension it may be necessary to continue it for several days combined with gastric suction.

These babies tend to vomit during operation. A nasal catheter passed into the stomach beforehand and left in position will often assist the anesthetist and later the pediatrician.

Sudden deterioration, with the production or progression of circulatory collapse, is common in the immediate post-

operative period and requires continuous supervision—in the theatre, on the way back to the ward, and in the ward—by someone experienced in resuscitation and able to take the decisive action required. Prompt clearing of the airway, oxygen, and the prevention of vomiting and inhalation by gastric suction may all be necessary. A small stomach-tube should be passed at the end of the operation if this has been unwisely omitted earlier. Circulatory failure or excessive hemorrhage calls for the immediate administration of plasma or whole blood.

Where vomiting of dark-green fluid or fecal fluid occurs, hourly gastric suction and full replacement therapy by the parenteral route are employed until only clear fluid or nothing at all is obtained from the stomach for some hours. If 20-30 ml. of water is given orally after each aspiration an idea of the amount of absorption taking place can be obtained, and infection and soreness of the mouth and esophagus are minimized.

Milk feeding at two-hourly intervals can be started after 12 hours. If the child is

breast-fed the mother is admitted and feeding started about 12 hours after the operation.

After 48 hours, if the bowels have been opened—with the help of a glycerin suppository if necessary—and feedings are being taken and retained, there is no need for continued stay in hospitals, and early discharge is the rule. In most cases some degree of fever continues for several days, but it tends to subside steadily, and in our experience need not prevent the child from going home.

The wound can be sealed off with "elastoplast" over a gauze dressing, and normally needs no further attention until the stitches are removed on the seventh or eighth day, which can readily be done at an outpatient visit.

The length of stay in hospital in uncomplicated cases is three days. Children with ileostomy or anastomosis, of course, require a longer period in hospital and special surgical care suitable to the nature of the operation.

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JPS:HBJ



LONGEVITY IN UNITED STATES SETS NEW MARK IN 1946

The average length of life of the people of the United States based on 1946 death rates reached a new high of nearly 67 years, according to Federal Security Administrator Oscar R. Ewing. He based his statement on life tables for 1946 compiled by FSA's National Office of Vital Statistics, Public Health Service. This represents an increase of almost a full year over the corresponding figure for 1945, and an increase of nearly two years over the level prevailing in the immediate prewar period, 1939-1941.

The 1946 life tables have been prepared separately for white and non-white males and females, and show that the expectation of life at birth for white females is now 70.3 years, exceeding the biblical "three score and ten" for the first time in the history of the nation. On the average, white men do not live as long, their average length of life being 65.1 years.

The average longevity of nonwhites is still lower, the corresponding 1946 figures being 61.0 years for nonwhite females and 57.5 for nonwhite males. However, the improvement between 1945 and 1946 was greater for the nonwhite than for the white population. In fact, a narrowing race differential in longevity has been observed since 1900.

The expectation of life at birth has steadily increased since the turn of the century, largely as a result of the control of infectious diseases, which formerly took a heavy toll of lives among infants, children, and young adults.—*Release, Federal Security Agency.*

DERMATITIS FROM WEARING APPAREL

By L. Schwartz, M.D., Washington, D. C.

Condensed from the Journal of the Michigan State Medical Society

DERMATITIS caused by wearing apparel begins at the site of contact with the offending material, five days or more after the garment was first worn. This is the length of the period of incubation for the development of sensitivity. The dermatitis may appear before five days if the patient has been sensitized to the offending chemical in the garment by exposure from some other source previous to the time that the garment was first worn.

The eruption is usually sharply limited and confined to the areas of the skin which had been touched by the garment. In those exceptional cases where the eruption is more or less generalized, the garment may have touched all the affected parts or the eruption may be a toxic one, the result of absorption of the offending chemical through the skin to the body. In such cases, systemic symptoms such as elevation of body temperature may accompany the dermatitis. The eruption may be a simple erythema or it

may be edematous, papular, and vesicular. A patch test, performed with a piece of the garment while the dermatitis is in the active stage, should be positive if the garment is the causative agent.

Patch tests should be performed by cutting away a piece of the material, about 1 inch square, applying it to an unaffected skin site of the patient, covering it with an insulating substance—such as non-waterproofed cellophane, 1.5 inches square and fastening this to the skin with a piece of adhesive 3 inches square. A similar patch is also placed on a control subject. (Circular patches of the same diameter may be used.) Experience has taught the author that more positive reactions result from large patches than from small ones. The patches are removed after 24 hours and the reactions read. A positive patch test confirms the diagnosis. A positive patch test on the control as well shows that the material contains a primary irritant. A negative patch

test on the control and positive one on the patient shows that the chemical in the material is a sensitizer.

To find the actual irritant chemical in the fabric, an attempt should be made to ascertain from the manufacturer the names and to obtain samples of the dyes and finishes used on the fabric so that the patient may be patch-tested separately with each of them. If the manufacturer refuses to supply the information and chemicals, the following procedure will roughly determine whether the dyes, finish, or fabric itself is at fault: Soak the fabric in warm, slightly acidified water for 24 hours. If the water becomes discolored, the dye bleeds and may be the actual irritant. Concentrate the solution by evaporation in vacuum to about one-tenth of its original volume; immerse a piece of surgical gauze 1 inch square in the concentrate and patch-test the patient with it. If the dye does not bleed and the water remains colorless, follow the same procedure. If the patch test with the dyed gauze is positive, the finish or dye is at fault. If the patch test with the undyed gauze is positive, then the water-soluble finish

is at fault. If it is negative, then suspect a water-insoluble finish. If both patch tests are negative, then soak a piece of the fabric in ether for a few hours to extract the ether-soluble finish; pour off the ether into a large shallow dish or crystal and allow it to evaporate, and perform a patch test with the residue. If possible, obtain a piece of the unprocessed fabric and patch the patient with it in order to pick up the rare cases of sensitivity to the fabric itself.

Once the diagnosis of dermatitis from wearing apparel is made, the treatment becomes simple. The offending garment should not be worn and only soothing medication applied. Unless complications (secondary infection, lichenification, et cetera) have already set in, all cases should soon get well.

The majority of cases of dermatitis of this type are caused by processed fabrics. Fabrics in wearing apparel consist of the basic fabric and all the chemicals remaining in it from the processing operations. The principal chemicals remaining in the fabric are the dyes, mordants and finishes. Fabrics are also made of synthetic resins, glass, and

casein. Regenerated cellulose, cellulose acetate, polymers of hexamethylenediamine adipate, vinyl chloride, vinyl acetate, and styrene are all used as synthetic fabrics. While dermatitis has been reported among the wearers of synthetic fabrics, they all occurred from the finished product and not from the unprocessed material.

The finishes on fabrics are the most frequent causes of dermatitis. Finishes are applied to fabrics to make them look better, feel better, give better wearing qualities, prevent "runs," prevent wrinkling, hold the crease, make them waterproof, flame-proof, mothproof, moldproof, insect-proof, and antiseptic. Some finishes are removed by laundering and must be reapplied. Such are the finishes of phenyl mercuric acetate which are being applied to diapers with the mistaken idea that they will prevent diaper rash. They may cause dermatitis. Some finishes, because they are not readily soluble in water, stay more or less permanently on the fabric.

Antiwrinkle, crease-holding and "run"-preventing finishes usually consist of emulsions or solutions of synthetic resins

and are applied to the fabrics in the dye bath. The resins are not completely cured when first applied, the cure being completed either in the heat of the dye bath or by heating after dyeing. Completely cured water-insoluble resins rarely cause dermatitis, but if the cure is not completed, the uncured resins remaining on the fabric may cause dermatitis. Dermatitis has been reported from incompletely "cured" estergums, phenol-formaldehyde and urea-formaldehyde resin finishes, but any of the uncured resin finishes may cause dermatitis.

DDT, pyrethrum, rotenone, lethane and the thiocyanates are the principal delousing agents, and they may all cause dermatitis.

Most of the commercial mildewproofing agents are primary skin irritants and sensitizers. Some of them have caused dermatitis even when used in extremely low concentrations. The phenyl mercuric salts, dihydroxy dichlorodiphenyl methane, tetra brom orthocresol, paranitrophenol, and the chlorphenols are examples of antimold fabric finishes which have caused dermatitis.

LEATHER. The incidence of dermatitis caused by wearing apparel made of leather is small. Dermatitis has been most frequently reported from shoes. The inner linings, stocking guards, inner soles and tongues of shoes are often impregnated with antimildews and fungicides with the mistaken purpose of preventing "athletes foot." In the experience of the author, the fungicides have been the chief causes of dermatitis from shoes. If the shoe backing is made of dyed leather, then the dye may cause dermatitis. Dermatitis from hat bands is not infrequent. Hat bands causing dermatitis have usually consisted of "artificial leather." This may consist of a fabric or paper base impregnated with a mixture of cellulose nitrate or acetate, oils, resins and rubber. Scrap leather may be mixed with oil, rubber, and pastes, and pressed together into sheets to make artificial leather. The possible irritants in artificial leather are the dyes, resins, antioxidants and accelerators.

FURS. The majority of the cases of dermatitis from furs have been caused by paraphenylenediamine and the other oxidation dyes. A few

cases may be due to the chrome mordants, the tanning agents used on the fleshy sides of the pelts, or the mechanical irritation of the skin caused by contact with coarse hair. In order to develop dermatitis from the dyes and mordants, the wearer must be sensitive to these chemicals before the fur is worn, in which case dermatitis develops a day or two after the fur is first worn, or must become sensitized by wearing the garment, in which case the dermatitis occurs a week or longer after the garment is worn. Poorly dyed furs, from which the perspiration leaches the dyes, are the usual causes of inducing sensitivity. Once a person is sensitized, even the wearing of a well-dyed fur may cause dermatitis.

RUBBER. Dermatitis has become more frequent from wearing rubber articles since the use of synthetic rubber began, because unlike natural rubber, the synthetic rubbers themselves contain sensitizing chemicals, and in addition, when processing them, the same accelerators, antioxidants, plasticisers, stabilizers, et cetera, are added which are the actual causes of allergic dermatitis from natural rub-

ber. Dermatitis often occurs from gloves, dress shields and girdles made of synthetic rubber. The girdles are made of both fabric-covered synthetic rubber threads, and of sheets of synthetic rubber. Phenyl beta naphthylamine, used both in making and processing synthetic rubber, is the most frequent actual cause of the dermatitis. The accelerators used to vulcanize the rubber, and the chemicals formed on the surface of the rubber by the action of the sulfur monochloride used in the "acid" or

"vapor" cures, are also frequently the actual causes.

JEWELRY. Most of the reported cases of dermatitis from jewelry have been attributed to nickel and chromium contained in alloys, but ornaments made of the synthetic resins may cause dermatitis. Earrings, necklaces, lockets, watches, and spectacle frames have been reported as causes of dermatitis. The fluxes used in soldering jewelry sometimes contain fluorides and zinc chloride which are skin irritants.

CSW:RDD



ELECTRIC SHOCK THERAPY IN GENERAL PARESIS

Cases of general paresis with prominent affective components in the psychosis respond well to electric shock even though signs and symptoms of organic brain disease may be present. Because of the immediate improvement which occurs with shock therapy, it is not possible to consider that the psychiatric symptoms are, in themselves, directly the result of certain constellations or combinations of ganglion cell destruction.

The questions involved in the best time relationship between shock therapy and specific therapy have not yet been solved. On the basis of common-sense reasoning, for the time being we believe that it is wise to withhold shock therapy until the inflammatory aspects of the disease have been at least partially checked by penicillin.

In patients with states of extreme overactivity electric shock by its quieting effect occasionally may be life-saving and is of value in spite of the presence of signs and symptoms of organic brain disease.—*Harry C. Solomon, M.D., Augustus S. Rose, M.D., and Robert E. Arnot, M.D., Journal of Nervous and Mental Diseases, April, 107: 377-381, 1948.*

SBH:KOE

MALARIA

By Quentin M. Geiman, Ph.D., Boston

Condensed from the New England Journal of Medicine

CHEMOTHERAPY. Advances in the chemotherapy of malaria are almost entirely the result of an extensive wartime research program. The program was dictated by the necessity of fighting in malarious areas and by the urgent need of prophylactic and curative drugs that would offset the grave loss of the source of quinine from the Netherlands East Indies.

Therapeutic problems with malaria involve the need of a drug to act as a prophylactic preventive of infection by killing the infective stages, or sporozoites, injected when the mosquito bites or by preventing the parasites from entering and from developing in the blood stream to cause the disease. In benign tertian malaria, a drug to be of specific value must produce not only a clinical cure but also a radical cure by destroying the hypothetical tissue stages of parasites that are responsible for relapses.

QUINACRINE (ATABRINE). At the beginning of World War II, quinacrine was the most

effective antimalarial drug available. Extensive pharmacologic, clinical, laboratory and field studies have made quinacrine one of the better known drugs. Analyses of blood concentration in man after the previously recommended dosage schedules revealed the difficulty and inadequacy of obtaining effective blood levels quickly. However, when a priming or loading dose of the drug was given on the first day, high plasma concentrations were obtained more quickly. The dosage is then lowered on the second day, and the required level can easily be maintained to complete the course.

Thus, the recommended therapeutic dosage of quinacrine for clinical malaria in adults is now two tablets of 0.1 Gm. (a total of 3 gr.) and 1 Gm. (15 gr.) of sodium bicarbonate by mouth every six hours for five doses and then one tablet of 0.1 Gm. three times daily for six days (total dosage, 2.8 Gm. in seven days). Each dose should be taken with a full glass of wa-

ter, sweetened tea or fruit juice after a meal to avoid gastric discomfort.

The prophylactic or suppressive dosage for adults is as follows: one tablet of 0.1 Gm. (1½ gr.) daily, preferably beginning two weeks in advance of exposure, and continuing for at least four weeks after the last possible exposure in a malarious area. When quinaquine is to be taken as an antimalarial drug, administration should be started up to two weeks before a malarious area is entered. This procedure is essential to get an effective plasma level for suppression of clinical malaria.

CHLOROQUINE. Another compound, chloroquine diphosphate (synonyms, SN-7618, resochin and aralen) has been found to be a more potent antimalarial drug than quinaquine. This compound was first synthesized and patented in Germany. Two years later the patent granted in this country was assigned to Winthrop Chemical Company.

Chloroquine will effect a complete cure of malignant tertian malaria. When taken prophylactically, this drug will not prevent infection, but it is effective as a suppressive.

Clinical cures of vivax malaria are readily obtained, but relapses are not prevented.

The effective dosage of chloroquine (aralen) for suppression of malaria is 0.3 Gm. of the base, but the manufacturers produce the drug as a diphosphate in tablets of 0.25 Gm., and hence 0.5 Gm. (two tablets of 0.25 Gm.) in a single dose once in a week is recommended. In clinical malaria, an initial dose of 1 Gm. followed by an additional 0.5 Gm. in six to eight hours and then a single dose of 0.5 Gm. on each of two consecutive days is recommended.

PALUDRINE. An entirely different type of antimalarial drug was discovered during the war by British investigators and announced in 1945. This drug, called paludrine, represents another milestone in the efforts of man to find an ideal drug for true causal prophylaxis and treatment of malaria.

The prime advantage of paludrine over other antimalarial drugs is that it is a true causal prophylactic for falciparum malaria, giving complete protection against this parasite when the proper dosage is taken. The drug will also give radical cures of this

lethal type of malaria. Although the drug will suppress and give clinical cures of vivax malaria, relapses will occur. The drug acts against the hypothetical tissue stages of falciparum malaria and against the asexual stages of *P. falciparum* and *P. vivax* in blood that are responsible for the clinical symptoms.

The toxic dose is approximately two hundred times the therapeutic dose, so that the drug is relatively harmless.

The dosage for causal prophylaxis of *P. falciparum* infection is 0.1 Gm. twice weekly. A single dose of 0.3 Gm. once weekly is usually effective in suppressing clinical symptoms and parasitemia of both malignant and benign tertian malarias. In a radical cure of falciparum malaria, 0.3 Gm. once daily for ten days is usually effective. For vivax malaria, the same dosage may be employed, but no radical cure can be obtained and clinical improvement is very much slower than that after administration of quinacrine or chloroquine.

PENTAQUINE. Before World War II, the only drug that was effective against the gametocytes of *P. falciparum* was plasmochin (synonym,

pamaquine). The relatively low relapse rate with vivax malaria after combined therapy with plasmochin and quinine had been noted by a number of investigators.

When great numbers of relapsing vivax malarial infections developed during the Pacific war, the extent and seriousness of the problem led to a reconsideration of the properties of existing antimalarial drugs. Plasmochin combined with quinine was the only known therapy that lowered relapse rates of vivax malaria. The high toxicity of plasmochin prevented its general use, and less toxic analogues were sought. That search has now resulted in the discovery of two new and less toxic 8-aminoquinoline compounds called pentaquine (SN-13,276) and SN-13,274. The latter drug has not been named officially, but the name isopentaquine has been suggested. These drugs when used singly in combined therapy with quinine are said to reduce the relapse rate of vivax malaria by 85 per cent. The compounds are not commercially available at the time of writing, but they should become available in the near future.

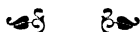
The recommended dosage applies only to clinical and radical cures of vivax malaria with pentaquine and quinine. The drugs are too toxic for suppressive or prophylactic use. A daily dose of 60 mg. base (equivalent to 80 mg. of diphosphate) and 2 Gm. of quinine administered concurrently in divided doses every four hours for 14 days is sufficient to produce radical cure of severe infections due

to *P. vivax*. The drug is to be given only under close medical supervision and in a hospital if possible.

Thus, we now have new drugs for the prophylaxis, suppression and treatment of malaria. Each drug appears to have special attributes against certain species and stages of plasmodia, but no drug answers the ideal requirements.



KAE:KOE



NATIONAL BLOOD PROGRAM URGENT

Rx: BLOOD, 1,000,000 pints. To be taken every week for first three weeks in event of atom bomb attack.

That prescription has already been written by the nation's leading authorities on medical defense.

There is only one blood bank in the world where that 1,000,000-pint-a-week prescription can be filled. That blood bank is circulating in the veins and arteries of the living American public.

But in the event of an atomic attack, there would not be time to find and bleed one million persons, test and process the blood, and transport it to the scene of the disaster. Some of the blood must be stockpiled, and the machinery for getting more in a hurry must be set up and ready to go into action at a moment's notice. And since blood cannot be kept longer than three weeks, the stockpile must be continually renewed.

The answer to the problem, medical and health defense authorities believe, lies in the hands of the American Red Cross. During the war, this organization collected 13,326,242 pints of blood for our armed forces. Last year, when the nation's blood stockpile for ordinary peacetime needs was growing dangerously low, the Red Cross responded to widespread appeals to set up a national blood program. Now, with the world a-jitter over the possibility of atomic war, such a national blood program seems more essential than ever.—*Science News Letter*, July 3, 54: 10, 1948

OBSERVATIONS ON THE USE OF THE RESPIRATOR IN REFRACTORY STATUS ASTHMATICUS

By M. F. Reiser, M.D., & E. B. Ferris, Jr., M.D., Cincinnati

Condensed from the Annals of Internal Medicine

RECENT advances in our knowledge of the nature and management of bronchial asthma have contributed greatly to the intelligent handling and well being of patients afflicted with this disorder. Interim treatment oriented in relation to allergic, psychiatric and physiologic considerations has greatly increased the comfort of asthma sufferers, and has reduced the frequency of acute episodes of asthmatic breathing. For the acute attack the physician now has at his disposal a powerful armamentarium of antispasmodic and sedative drugs in addition to materials for effective inhalation therapy; yet a small number of patients suffering status asthmaticus fail to respond to the most heroic and carefully planned therapy available. It is the purpose of this communication to present a new therapeutic maneuver (use of the Drinker Respirator) which appears to be of value in the treatment of such cases.

Case report. W. B., a 47-year-

old white male, was admitted to the Cincinnati General Hospital on March 6, 1946 in a severe attack of acute asthmatic breathing of one hour's duration. His past history revealed onset of bronchial asthma in February 1944. In the following two years he had been seen in the receiving ward on 20 occasions for relief of acute attacks. The duration and frequency of the attacks had steadily increased and the amounts of antispasmodic, sedative, and oxygen therapy necessary for their relief had progressively increased. During this time he had been attending the outpatient dispensary where dental and paranasal foci of infection had been satisfactorily treated; routine medical care had been administered, and desensitization to house dust (the principal allergen revealed by skin testing) had been in progress since June 1944.

On admission the patient was apprehensive and panic stricken. He was deeply cyanotic, his skin was cold, and he was drenched with perspiration. The chest was hyperresonant and fixed in a position of maximum inspiration, with all of the accessory muscles of respiration in use. Respiratory exchange was shallow; loud inspiratory and prolonged expiratory wheezes and rhonchi were heard over the entire chest. The blood pressure was 140 mm. Hg. systolic and 100 diastolic and the pulse rate was 120 per minute. The remainder of the physical examination revealed nothing of note.

Oxygen, 100 per cent, by mask, intravenous aminophylline, subcutaneous epinephrine and sodium luminal failed to produce any improvement.

After an hour and a half rectal ether was administered, an 80 per cent helium-20 per cent oxygen mixture was substituted for 100 per cent oxygen, and sodium iodide was given by intravenous route. For awhile the patient seemed to benefit in that cyanosis was minimal, he seemed more relaxed, and the skin became warmer and less moist; but physical examination failed to reveal any evidence of relaxation of the bronchial spasm. He lost strength rapidly and five hours after admission he was again deeply cyanotic and covered with a cold sweat. Pulmonary ventilation seemed reduced almost to zero and the pulse rate rose to 140 per minute. Collapse seemed imminent. The patient was placed in a Drinker Respirator.

Improvement was immediate and dramatic. The patient appeared relaxed and comfortable and fell into a restful sleep. His skin became warm and dry and the cyanosis disappeared. The pulse stabilized at 120 per minute and was of good quality. Helium-oxygen mixture was continued throughout by mask and adrenalin in oil was administered at the end of the first hour in the Respirator. The patient remained in the Respirator for nine hours at the end of which time he awakened and was able to breathe adequately without its aid.

Examination now revealed evidence of only a very slight residual amount of respiratory obstruction. Subsequent recovery was uneventful.

In other cases the specific and directed application of mechanical energy for the support of expiration appears to have furnished the necessary crutch for maintenance of adequate respiratory exchange until the bronchial

spasm had undergone remission. Disappearance of cyanosis was prompt and dramatic in each of these patients. In addition, improvement, in the circulation attendant on the relief of anoxia was evident.

The induction of partial anesthesia may be required as part of the treatment. A patient in acute respiratory distress, being anxious and fearful to the point of panic, will attempt to fight the machine and be made worse unless the level of consciousness is sufficiently depressed to permit passive acceptance of the mechanical aid. Eighty per cent to 90 per cent synchrony of the excursions of the machine with the patient's respirations will provide adequate oxygenation.

From our experience it is felt that it is of utmost importance that the therapy be instituted early in the course, before irreversible changes have appeared, or other grave complications have had time to gain foothold. This maneuver is not suggested as a substitute for other well-established methods of treatment, but rather as an adjunct to them in refractory cases.

PENICILLIN IN PULP-SPACE INFECTIONS OF THE FINGER

H. Bolton, B. N. Catchpole and R. P. Jepson, Manchester, England

Condensed from the Lancet

ONE hundred consecutive cases of pulp-space infections were studied at the Royal Infirmary in which penicillin was given. The infections fell into three groups.

First, the simple felon. This produces a throbbing pain present for a few hours or a few hours or a few weeks, with the affected pulp-space tender and swollen. The treatment is incision. The lateral "hockey-stick" incision with the tip of the J approaching to within 3 mm. of the nail-skin junction, and the proximal end some 5 mm. short of the ventral flexor crease was made. A thin strip of rubber glove drain was left in for 12-18 hours.

Soaks and moist dressings were avoided. The wound was dressed every three or four days with a thin layer of soft-paraffin gauze over a light film of penicillin powder surrounded by a dry gauze dressing. Short wave diathermy was instituted.

Seventeen days was the average for complete healing, with 100,000 units of penicillin

intramuscularly twice a day. No clinical difference was noted in the healing with and without penicillin.

The second group was that of suspected bony felon, in which was a sinus or open wound discharging for a week or 10 days with no evidence of healing. The surgical treatment is the same as for simple felon with adequate drainage. The dose of 100,000 units twice a day of penicillin has proved adequate provided it is used for 10-21 days.

The third group of established bony felon where the diagnosis is made by the decalcified osteoporotic phalanx showing focal necrosis. The surgical treatment is adequate drainage of the pulp space and a long course of penicillin of 100,000 units twice a day for 2 weeks. When, and only when, sequestra became clearly demarcated was the wound reopened and the necrotic fragments removed. Every finger so treated healed within 8 weeks, in contrast to 30 cases treated without penicillin which healed in 14 weeks.

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(Lancet, October 25, 2: 608-610)

LKF:CBH

PENICILLIN ADMINISTRATION VIA THE VAGINA

By Robert I. Walter, M.D., Morris A. Goldberger, M.D., and Louis S. Lapid, M.D.,
New York City

Condensed from the New York State Journal of Medicine

IN a previous communication it was demonstrated that penicillin calcium in cocoa butter suppositories is readily absorbed through the vaginal mucosa and appears in the blood stream in therapeutic levels. This method of administration has obvious advantages: it is painless, can be carried out in the home and clinic, and does not require the ministrations of nurse or physician.

In this paper we wish to report five cases demonstrating the clinical application of this method of penicillin administration. All of the following cases were hospitalized in order to have accurate control of the medication and for close observation of the course of the diseases studied. The penicillin was administered in the form of vaginal suppositories, each containing 100,000 units of penicillin calcium in a base of cocoa butter.

CASE REPORTS

Case 1. A 26-year old gravida III, para H, was admitted September 9, 1946. The past history revealed an

induced abortion five months prior to admission, followed by a febrile course for ten days. The present illness had begun two days prior to admission with the onset of bilateral pelvic pain and fever. The physical examination revealed an acutely ill woman. The temperature was 103.6 F., pulse 104, and respirations 24. Pelvic examination revealed a normal vagina and cervix with marked tenderness in both tubes and ovaries. The uterus was normal in size and position, and no pelvic masses were palpable.

The laboratory findings were as follows: sedimentation rate 17 mm. in 24 minutes, hemoglobin 55 per cent, 13,000 white blood cells. Cervical smear was negative for gonococci. The clinical diagnosis was acute bilateral salpingo-oophoritis with pelvic peritonitis, cause undetermined.

The patient received two suppositories of penicillin calcium every two hours for 30 doses followed by two suppositories every four hours for four doses. The blood serum level of penicillin following the twenty-eighth dose of medication was 1.3 Oxford units per cc. The total dosage was 6,800,000 Oxford units. Duration of the treatment was five days. The temperature fell to normal after 48 hours, and abdominal signs of peritonitis cleared. The final examination at the time of discharge on September 9, 1946, revealed a normal pelvis with no adnexal masses.

Case 2. This patient was a 22-year-old nulligravida who entered the hospital on July 20, 1946, with the chief complaints of pelvic pain, chills, and fever of four days' duration. The patient was acutely ill. The temperature was 102.8°F., and the entire ab-

domen was tender with direct rebound tenderness in both lower quadrants. Cervical smear was positive for gram-negative intracellular diplococci. The clinical diagnosis was acute specific cervicitis and bilateral salpingo-oophoritis.

The patient received two vaginal suppositories of penicillin every four hours for 18 doses followed by one vaginal suppository every four hours for four doses. The total dosage was 4,200,000 Oxford units. The temperature fell by lysis to normal on the third day following admission. On the second hospital day the abdomen was soft, nontender, and all signs of peritoneal irritation had disappeared. Cervical smear studies at this time were negative for gonococci. Pelvic examination four days after admission revealed normal palpatory findings.

Case 3. A 26-year-old nulligravida was admitted to the hospital on July 21, 1946, with chief complaints of lower abdominal pain, fever, and sanguineous vaginal discharge of eight days' duration. Temperature was 102 F. Pelvic examination showed a profuse sanguinopurulent cervical discharge. The uterus was soft, globular, and tender.

The laboratory findings were as follows: cervical smear, positive for gonococci; hemoglobin 30 per cent; 6,700 white blood cells; Wassermann negative; 370,000 platelets.

One penicillin suppository was administered every two hours for 17 doses. The total dosage was 1,700,000 Oxford units. The temperature fell by lysis to normal in three days, and the cervical smear was negative for gonococci at the end of twenty-four hours.

Case 4. A 32-year-old gravida II, para II, was admitted on September 6, 1946, with the chief complaints of profuse vaginal discharge, dysuria, and mild pelvic pain of three days' duration. Pelvic examination revealed urethral and cervical discharge. There was slight tenderness

in both adnexal regions on bimanual examination. Smear and culture of cervix and urethra were positive for gonococci. The clinical diagnosis was acute specific urethritis, cervicitis and salpingitis.

The patient received one vaginal suppository every four hours for 22 doses. The total dosage was 2,200,000 Oxford units. The vaginal discharge and urinary symptoms disappeared within twenty-four hours, and smears and culture of the cervix and urethra were negative in 48 hours.

Case 5. A 58-year-old woman was admitted to the hospital on August 26, 1946. The patient's chief complaints were dysuria, frequency, and fever.

The patient appeared chronically ill. Her temperature was 101.4 F., and there was slight tenderness in the suprapubic region and over the left kidney posteriorly. The clinical diagnosis was acute cystitis and pyelitis. Urine examination showed 2 plus albumin, occasional red blood cells, numerous clumped white blood cells, and *Streptococcus viridans* on culture. Two vaginal suppositories were administered every three hours (with the omission of the 3:00 A. M. medication) for 48 hours for a total dosage of 2,800,000 units. The urinary symptoms subsided, and the temperature fell to normal within 24 hours. Urine examination was negative at this time.

Although the number of cases presented is small, it seems to be fairly well demonstrated that the therapeutic results following the administration of calcium penicillin intravaginally parallel the results obtained with penicillin administered intramuscularly.

No local or systemic toxic symptoms were encountered

in the cases reported here. We have used vaginal suppositories of penicillin in approximately 100 patients in the treatment of local genital pathology and prophylactically in doses varying from 100,000 to 500,000 units every three hours.

In three instances patients complained of mild vaginal burning, and the drug was discontinued. Usually the burning occurred after the first or second suppository.

Objectively, no change in mucosa could be detected, and the symptoms ceased immediately.

The use of the vagina as a depot or reservoir of penicillin in the treatment of systemic disease has obvious advantages in the case of administration, the ability to treat ambulatory patients and in the home, and in not requiring the ministrations of physician or nurse.

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CBL:KOE



VA RECORDS OF SYPHILIS

It would be deeply appreciated if you would print the following notice in your publication.

"The Veterans Administration has in its custody the majority of syphilis records of those Army personnel who were treated for this disease while in active service, and in many instances can procure informative data from the syphilis records of other than Army personnel. It is thought that many physicians treating veterans for syphilis as private patients would find a resume of the syphilis record useful since the details of treatment, results of spinal fluid examinations, and blood serologies are incorporated in the records.

Resumes of these records are available to physicians who are treating such veterans provided authorization for the release of the data is given by the veteran. Requests for the resumes accompanied by an authorization for the release of the data, dated and signed by the veteran, should be addressed to the Dermatology and Syphilology Section, Veterans Administration, Munitions Building, Washington 25, D. C. It is most important that the veteran's Service Serial Number and other identifying information, such as the date of enlistment, the date of discharge, rank, and organization be included.

Ordinarily, the resumes can be furnished in approximately two weeks from the date of the receipt of the request and signed authorization."

Sincerely yours,
PAUL B. MAGNUSON
Chief Medical Director

Delaware State Medical Journal, June, 20: 123, 1948.

SUBJECTIVE AND OBJECTIVE NOISES IN THE EAR ("BUZZING")

By J. Shanks, M.D., Chicago

Condensed from the Medical Record

THE subjective sensation of buzzing in the ear or tinnitus is a symptom of common occurrence. The term or terms alluded to this condition are of course incorrect as in most cases the sound does not arise in the patient's ear, but is due to some other disturbance in the intracranial circulation. Therefore, the etiologic factors are numerous and far reaching.

For instance, a disturbance of the auditory nerve may easily produce the subjective sensation, what the patient calls noises or buzzing. This may be due to disease of this structure, but could also be induced by various substances or drugs which seem to have a peculiar effect upon the nerve such as quinine and salicylates; or by toxins generated in the gastro-intestinal tract (constipation).

Subjective noises are a greater trouble to the patient than the objective variety and are even of more interest and offer greater opportunity for cooperation and study for the otologist and general practitioner.

Some otologists and authors believe that this condition is al-

ways caused by disturbances or irritation of the auditory nerve or its terminal filaments in the labyrinth. While such beliefs may be true in the majority of cases, they must not be conceded in every case.

Perkins in his work *A Manual of Otology* states in this connection: "If one occludes the external auditory meatus with the finger there is immediately produced a rumbling sound. This is not produced by irritation to the auditory nerve or its terminal filaments.

"The explanation for this phenomena doubtless accounts for the production of tinnitus in many instances in which it is present as a symptom of disease in the sound conducting mechanism. The noise produced by the circulation of the blood in the labyrinth and the blood vessels adjacent to it, is below the threshold stimulus for the perceptive mechanism, and therefore is not heard by the normal ear.

"It is known that with disease of the conducting mechanism, vibrations of the labyrinthine fluid produce more effect upon the acoustic apparatus. This

accounts for the increased bone conduction which is present in these diseases.

"The labyrinthine fluid is with more difficulty set in vibration by aerial conduction on account of the disease, but if caused to vibrate by conduction through the bone, the fork is heard louder and longer on account of the disease.

"It is evident that the sound produced by blood circulating in the labyrinth and vessels adjacent to it produces an effect which in the normal state is inaudible, but with increased perception for a given vibration of labyrinthine fluid, which has been shown to occur in diseases of the conducting mechanism, it rises into consciousness and is perceived as a noise.

"This accounts for the sound perceived when the finger is inserted into the ear and also doubtless for many subjective noises."

Sounds produced this way have a physical basis, while those produced by pathologic disturbances arise chiefly from a stimulation of a nonsonorous character which is believed to be sound. It is well to remember that increased labyrinthine pressure by producing some disturbance of the organ of Corti may also cause tinnitus.

Aside from intralabyrinthine pressure—with or without deafness—and otosclerosis, we must never lose sight of such conditions as existing external (cerumen-otitis), middle or internal ear diseases, dental pathology, anemia or other constitutional diseases; coexisting nasal and nasopharyngeal diseases; nervous irritability, etc.

OBJECTIVE NOISES. Such phenomena have been reported more or less in past years. Various writers and otologists have from time to time spoken on the subject, although most surgeons have not been greatly impressed by these phenomena. The latter fact is probably due to the comparative rarity of their occurrence and the few published accounts of such cases.

When the sounds are of vascular origin, they may arise within the carotid artery, or bulb, aneurism or tumor of the brain. This condition offers a field for genuine cooperation and study between the otologist and general practitioner, since these manifestations are often due to real pathologic processes whose nature could obviously be obscure—in this variety of objective ear noises.

The noises or sounds to be considered here (entotic noises—

muscular) have been compared to the snapping of the finger nails. Unlike the perversions of hearing such as in the subjective variety the examiner is often able to hear the entotic noise; aside from the snapping sounds we often encounter a form of clicking sounds and a blowing murmur. The clicking sounds may undoubtedly be due to some movement of the Eustachian tube or to spasmodic contraction of the tensor tympani.

PROGNOSIS. The prognosis of subjective or objective ear noises will naturally depend upon the pathology of which their occurrence is a symptom. In eustachian tubal catarrh and tubotympanic congestion, especially in the exudative type of otitis media, the prognosis is not always hopeless. In the suppurative middle ear diseases the noises are more apt to disappear than in the hyperplastic form of otitis media catarrhalis.

In otosclerosis, on the other hand, such phenomena may per-

sist even when deafness is most profound. In sensitive, nervous patients tinnitus had led to suicide. It is, therefore, necessary to remember that the patient, while recognizing the subjective nature of the noise cannot often resist the temptation to think that the buzzing or noise could also be heard by others. Hence, the physician could do well by impressing the fact upon the patient that the noise is only subjective; otherwise his fears and belief that the sound is produced from within would constitute an hallucination.

In the objective variety we only have to think of aneurism and brain tumors, otherwise favorable results are more possible if we could control the nervous incident—an opportunity for the general practitioner to study the patient's habits, blood pressure, gastro-intestinal conditions, anemia, vascular diseases, blood dyscrasias, syphilis, tuberculosis and drug intoxications



AN EVALUATION OF CURARE IN SPASTICITY DUE TO SPINAL CORD INJURIES

By Robert A. Kuhn, M.D., and Donald S. Bickers, M.D., Framingham, Mass.

Condensed from the New England Journal of Medicine

DURING the past year, we have attempted to relieve spasm due to spinal cord injuries by a number of methods. Prostigmine and atropine administered parenterally have not been successful. Local injection of spinal nerves with procaine or related preparations provides relief of very short duration. Anterior rhizotomy has been performed as a last resort, the extent of nerve section depending upon the problem presented by the individual patient.

Transient beneficial effects were observed to follow the intramuscular injection of aqueous curare, but were nullified by incapacitating toxic symptoms. It was believed that d-tubocurarine in oil, because of its slow rate of absorption, might provide longer lasting relief of spasms without toxic side reactions.

Thirty-four patients on the Paraplegia Service were selected as spastic problems. The spasms ranged from mild muscle-group twitchings of almost subclinical importance

to spasticity so marked as to prevent any form of ambulation. Levels of cord injury ranged from the fifth cervical to the tenth thoracic segment. Seventeen patients had been injured by high-explosive shell fragments, and 10 by gunshot wounds, and 7 had sustained compression fractures of one or more vertebrae. Nine men had suffered partial lesions of the cord, and 25 demonstrated clinical evidence of complete transections.

The 34 patients were divided into two groups of 17 each, and an attempt was made to distribute them evenly according to the level of injury and severity of spasm. Patients in the first group were given 175 mg. (1 cc.) of d-tubocurarine in oil and wax intramuscularly every 48 hours for a total of ten doses. Those in the other group were given physiologic saline solution (1 cc.) intramuscularly at similar intervals and for the same period. To minimize prejudicial estimates of improvement the observer was

not cognizant of the distribution of controls or drug injections. The distribution remained unknown to the observer until all injections had been completed and his written report submitted. In each series, one nurse gave injections from beginning to end of the treatment period. Patients were told only that they were receiving "medicine for spasms."

Clinical observations by doctors, physiotherapists and nurses and subjective reports by the patients were accorded most weight in evaluation of the results obtained. Clinical estimates were based upon observation of the patients' ability to ambulate and maneuver between bed and wheelchair; response of spastic extremities to pinrick and other stimuli; and resistance of the extremities to passive motion. Each patient was questioned about the frequency, duration, severity and "sensitivity" of spasms between injections, and special care was taken to avoid leading remarks.

RESULTS. Amelioration of spasms was apparently obtained in 7 of the 34 patients. Three of these patients were receiving curare, and 4 were receiving physio-

logic saline solution. The degree of estimated improvement varied, but the most marked "relief" occurred in 2 patients in the latter group.

Pain was considered to be lessened in 3 patients—2 in the medication group and 1 in the control group. No changes occurred in the remaining 31.

Toxic symptoms were frequent and misleading. Manifestations of such symptoms by patients in the control group were usually indistinguishable from the complaints of patients actually receiving curare and frequently led to incorrect estimates of the type of medication.

The role played by suggestibility in therapy of this type of patient was clearly demonstrated. Intramuscular injection of d-tubocurarine in oil demonstrated no effects on spasticity that could not be duplicated with intramuscular injection of physiologic saline.

It must be realized that we were dealing with patients whose injuries had placed them in a unique psychological situation. A profound sense of inadequacy governed their daily lives. They had been forced to the logical conclu-

sion that their disability was in all probability a permanent one, and that they would never become normal. But such a realization did not prevent severe conflict with the hope (usually unexpressed) that some new treatment would be found or that some miracle would occur to restore their limbs. There was fertile ground for acceptance of ideas that are medically and surgically unsound. Suggestibility was maximal, and if the desire for improvement was of sufficient strength, "improvement" would result no matter what agent was employed.

The importance of suggestion is strikingly emphasized by the patients who were given physiologic saline solution. It stresses the need for controlled trial of any new drug in these patients. It is evident, too, that a striking reduction of spasm can be produced by suggestion in certain patients with proved anatomic severance of the spinal cord. The psychogenic factors involved, and their relation to spasm, are complex.

Twenty of the 34 patients

exhibited apparent effects of "overdosage" at one time or another; 11 of these received curare, and 9 received saline solution. Diplopia and pitting edema of the hands and feet were the only two findings noted in the curare group but absent in the control group. In the remainder of patients displaying "toxic symptoms" it was impossible to differentiate the drug group from the control group. The dizziness of the patients on curare differed in no way from the dizziness suffered by those receiving saline solution. Similarly, drowsiness and weakness proved extremely difficult to evaluate. The severity of symptoms was grossly misleading. In 3 patients toxic symptoms were sufficiently distressing to cause us considerable anxiety. Two of these patients were receiving curare, and 1 saline.

No significant differences between the control group and the curare group were observed.

No beneficial effects relating to the relief of spasms in paraplegic and paraparetic patients were obtained by the intramuscular injection of d-tubocurarine in oil.

TREATMENT OF LEG ULCERS

By A. Ravina, Paris, France

Condensed and Translated from La Presse Medicale

WE have recently treated several cases of leg ulcers by a combination of sclerosis of varicose veins, intra- or perifemoral infiltrations with procaine, and intramuscular injections of penicillin. These cases all consisted of chronic ulcers with thickened edges, showing no tendency toward spontaneous cicatrization. Our method has the advantage of being rapid, and of being easily endured by the patient. The period of immobilization is short.

In most cases of varicose ulcer, sclerosis of the veins is the first step to be taken; this procedure must include varices of the thigh as well as those near the ulcer. This procedure by itself is generally not sufficient, however, so one must resort to further treatment such as we are about to describe.

When an ulcer presents some degree of infection, we prefer to commence therapy by cleansing and disinfection of the wound for a few days. This should be combined with bed rest. After the ulcer is thoroughly cleansed, daily in-

jections of penicillin may be started, combined with perifemoral infiltration of procaine. The treatment should be continued for five to ten days, during which time no local therapy is applied.

We generally prescribe daily doses of 200,000 to 400,000 U. of penicillin, given in injections of 12,500 to 50,000 U. every three hours. With penicillin-in-oil, one or two daily doses may be given with equally good effect.

By combining parenteral administration of penicillin with peri-femoral procaine infiltration, we believe that a certain synergism of effect is obtained, which is superior to therapy with either method alone. We inject 10 to 20 cc. of a one per cent solution of procaine into the region adjacent to the femoral sheath. The frequency of injections depends on the extent of the ulcer and on the results obtained. Frequently it is necessary to give only 2 or 3 injections, at intervals of 2 to 3 days. If the ulcer is deep or extensive, injections may be given daily or every other day.

Up to the present time our results with this therapy have been encouraging. The ulcer becomes clean, and begins to heal, the adjacent skin regains its normal appearance, and pain disappears. In the cases which we have studied, there have been only two recurrences; these responded promptly to a second course of therapy.

This treatment is effective in ulcers of traumatic as well as of varicose origin. It is less effective in cases of peripheral arteritis, or of severe frost-bite of the feet. It is of no value in varicose eczema.

One of our patients had a varicose ulcer which had been

treated for six months by various means of therapy, without the slightest effect. We gave 100,000 U. of penicillin daily for six days, combined with daily injections of 10 cc. of procaine, and the ulcer cicatrized completely.

It is difficult to explain the mechanism of this healing. Certainly the hyperemic effect of the peri-femoral procaine injections plays a part. The vasodilation which follows permits regeneration of tissue which had been insufficiently vascularized. Penicillin undoubtedly serves to kill the bacteria which prevents cicatrization of the wound.

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LKF:HBJ



One in every 25 World War II veterans training under the G. I. Bill is preparing for a career in medicine or in a related field, a Veterans Administration survey revealed, *Release Veterans Administration*.

SALICYLATE THERAPY IN CHILDREN

By Giorgio F. Maggioni, M.D., Birmingham, England

Condensed from the Archives of Disease in Childhood

FOR more than half a century salicylate compounds have been used empirically in the treatment of rheumatic fever. They have analgesic and antipyretic properties, inducing symptomatic relief, especially in the presence of polyarthrititis, yet the mechanism underlying their effect is still unsolved and there is no satisfactory explanation of their action on the rheumatic process.

In treating rheumatic fever patients with salicylate therapy, it is desirable to reach drug levels of 25 to 35 mg. per 100 ml. of plasma. This can be done by administering 0.12 to 0.18 gr. per kilo of body weight; that is, 1 to 1.5 gr. per pound body weight. The oral use of freshly-prepared solutions of sodium salicylate in flavored water with sodium bicarbonate added in the proportion 1:1 when given every four hours, or 1:2 when given every two hours, is the method of choice. The administration by enema seems to be indicated in patients with severe vomiting.

Aspirin or calcium aspirin in tablets can also be used.

The intake by mouth of sodium salicylate in water is followed rapidly by its absorption, and its presence can be detected after fifteen or twenty-five minutes in blood and urine. The peak in the blood level is reached in from one and a half to two hours, and decreases slowly. It is not a new discovery that in children aspirin and calcium aspirin are absorbed at a slower rate and that the peak in the blood remains at the same level longer, falling more slowly. Sodium bicarbonate not only relieves the gastric disturbance if present but also increases the rate of absorption and excretion of salicylate. If we consider as a detoxifying action the increased rate of excretion by the urine of sodium salicylate given with double proportion of sodium bicarbonate, we should be in agreement with Peters (1947), who attributes a detoxifying property to the sodium bicarbonate.

In rheumatic patients treat-

ed continuously, the salicylate recovered in the urine amounts to 50 or 60 per cent. or less of the intake, especially during acute periods. The low level of excretion seems to be due, in Coburn's opinion, to a more extensive modification of salicylate rather than to storage, as the time of disappearance after stopping the medication is not increased. It has been suggested that the rheumatic disease contributes to this increased destruction of salicylate, but other patients, with fever not reduced by this drug, also showed a low salicylate output.

Tinnitus, nausea, anorexia, headache, vomiting, hyperventilation, nervous disorder, oedema, albuminuria, the presence of reducing substances in the urine, etc., are the most frequently described toxic symptoms. In pediatric practice, anorexia, nausea and vomiting are the commonest disorders, the latter sometimes of such a degree as to interfere with the administration of the drug by mouth. The fact of gastric upheaval is established without doubt by clinical observation. It is also known that vomiting appears with the same, or even

greater frequency after intravenous administration. Thus, vomiting is more related to the action on the cerebral centres than to a local effect on the alimentary tract.

Many authors have confirmed that in patients treated with salicylate drugs there is a decrease of prothrombin in plasma. The mechanism of the action of the salicylate on the prothrombin is not clear. The rapid elevation of prothrombin after stopping salicylate therapy is rather against an effect through hepatic damage. Vitamin K to prevent prothrombin diminution is necessary only after control of the prothrombin time.

Authors have confirmed that salicylate drugs increase the urine output of vitamin C. There is also a decrease of the vitamin C in the blood even after adding vitamin C to the diet (25 to 50 mg.). For this reason vitamin C for these patients is paramount.

In case of any sign of intoxication—the frequency of the respiratory movement should be observed—high doses of sodium bicarbonate together with fluid, given if necessary parenterally, can accelerate the excretion of the salicylate.

CALCIFEROL TREATMENT OF LUPUS VULGARIS

By D. E. MacRae, London, England

Condensed from the British Journal of Dermatology and Syphilis

ACCORDING to Ingram and Anning of the University of Leeds (England), more than 70% of cases of lupus vulgaris can be cured clinically in a period of 12 to 18 months with the following simple but exacting routine of treatment: "Daily ultra violet light baths to the whole body, combined with such improved living conditions and diet as can be achieved without serious interference with the ability of the patient to earn his own living, and generally to take his ordinary place in the labour market." However, the writers go on to say that "of the marked effect of calciferol upon certain cases of lupus there can be no doubt, and if effective it must be much less burdensome to the patient than the simple routine of light treatment."

In the United States the treatment of lupus vulgaris prior to the introduction of calciferol was far from satisfactory whereas since the introduction of this type of vitamin D, results have been greatly superior. As pointed

out later in the paper by Ingram and Anning, its use is certainly justified when facilities for treatment by light therapy do not exist, and the effect of massive dosage of calciferol on lupus is quite definite, if not dramatic, in a proportion of cases.

Macrae in the same journal states that of 33 cases of lupus vulgaris, every case responded to calciferol, but by no means to the same extent; some were treated with the vitamin alone, but the majority had local measures in addition. Of 33 treated in sixteen months, 28 were discharged clear of active disease and the remaining 5 comprised 2 patients who were still responding after total doses of $73\frac{1}{2}$ and 65 million units, 1 patient who showed improvement but who could not tolerate calciferol in even short courses, and 2 others who had only been treated for approximately four months. To clear all signs of active lupus the authors found the average dose required to be $24\frac{1}{2}$ million units, but figures varied from

as little as $9\frac{1}{2}$ million (combined in this patient with local measures) to $62\frac{1}{2}$ million in one particularly obstinate case. At a dosage of 150,000 units a day, therefore, the authors' relatively severe cases averaged $5\frac{1}{2}$ months of steady treatment before they were considered fit for discharge.

The tuberculin skin test was investigated thoroughly in the first few months. Fortnightly intracutaneous injections of 1/1,000 and 1/10,000 tuberculin were given to every patient and the diameter of redness produced was measured at the end of three days. From an initial diameter of 16.4 mm. the average rose to 19.5 mm. in two weeks, then gradually falling to slightly below its original level. At the same time the sedimentation rate rose from an initial average of 14.3 mm. in the first hour to 25 mm. at the end of a month, 22.9 mm. at the end of two months and 19 mm. at the end of three, then falling to normal except in those patients showing toxic effects. In 9 out of the 33 patients this reaction was not observed. There was a slight polymorphonuclear increase over the same period with a corre-

sponding diminution in lymphocytes, but at the end of 13 weeks figures had become more or less stationary.

Blood calcium figures have been difficult to interpret. In many, as would be expected, a gradual increase has been found; in others there has been a sudden rise to figures of 15.0 or 16.0, with or without toxic effects at the same time, while in others no change has been found, or even a diminution in some previously treated with ultraviolet light, etc., and particularly in those on intramuscular therapy. On the average, patients have shown a relative anemia during a prolonged course of calciferol, and most of them lost a certain amount of weight. Too often to be accounted for by coincidence, we have found a sudden drop in hemoglobin during the course of a month, by as much as 20%, accompanied at the same time by a rise in blood calcium of perhaps 4 mg.%. It does seem possible that the blood in these cases is being diluted in order to try and keep the level constant and when this fails the calcium rises and toxicity becomes more likely. The majority of our toxic cases have shown

raised serum calcium figures, but by no means all and some quite severe ones have been accompanied by serum calcium figures of less than 10 mg. 5. This theory is further hinted at by the thirst and polyuria which are fairly constant during, at any rate, the first month or so of treatment. Urine investigations have been essentially normal throughout, as have been blood-pressure and abdominal skiagrams for calcification.

Of 33 lupus patients 17 had unpleasant symptoms. In most of them treatment was continued and the toxicity gradually wore off, but it has been striking that during that bad phase calciferol exerted its best effects on the disease. It almost seems that one should aim to get as near that toxic level as possible and keep the patient there, and, in 3 of the author's cases, the lupus completely disappeared in a week or so. In adult lupus patients the average dose at which toxicity became obvious was $19\frac{1}{4}$ million, but this varied from $4\frac{3}{4}$ million to $63\frac{1}{2}$ million units in different individuals.

Dissemination of the dis-

ease and a flare-up of some quiescent tuberculous condition may occur. Two of the author's patients produced disseminated nodules two or three months after treatment was started; this was relatively unimportant, as they were the first to fade as treatment was continued. In two others a quiescent lung lesion flared-up, but on cessation of treatment this subsided; one other, a girl with Bazin's disease, died from a sudden haemoptysis, and the author states that he is not anxious to use calciferol in such doses on a patient confined to recumbency or who has a history of lung disease.

One or two patients commented that the consumption of the vitamin each day is followed after an hour or so by a feeling of depression and anorexia, lasting for three or four hours. These patients were greatly helped by taking their medicine the last thing at night, when symptoms had disappeared.

The dosages recommended by Macrae are 150,000 units a day for adults and 100,000 units a day for children.

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COLOSTOMIES: A FOLLOW-UP STUDY OF FUNCTIONAL RESULTS

By Samuel McDanahan, M.D. and William E. Gilmore, M.D., Baltimore

Condensed from the Southern Medical Journal

A SERIES of 40 patients with colostomies is presented. An evaluation is made of these colostomies from a functional and practical point of view using the patient's opinion and performance as a basis. Satisfactory colostomy control was present in 27 patients, or 68% of the group. Of the group 22 were colored, while 18 were white; females predominated in the ratio of 3 to 1.

The diagnosis which necessitated the colostomies listed 27 for carcinoma, 9 for lymphopathia venereum, and 4 miscellaneous. The average duration of the colostomy was 3 years. The type varied, 23 of them being terminal or end colostomies, and the remaining 17 about equally divided between loop and double barrelled colostomy.

A review of various anatomic complications showed 11 with hernia, or definite weakness at the site of the colostomy, 3 with prolapse, 2 each with fistulae and steno-

sis, and 1 with bleeding from the mucosa of the stoma.

Of 40 patients there were only 2 who seemed unable to adjust themselves mentally to the fact of a colostomy. None of these ever developed satisfactory control. Of prime importance is the formation of definite habits of evacuation. Regular irrigations should be carried out at a set time each day. Warm tap water is suggested. We are not impressed with the necessity of trying to constipate the bowel by either diet or medication.

One of the best teachers for the new colostomy patient is an old one. Encouragement as well as technical help by the right person is of immeasurable value. The study indicates that more than 2 out of 3 patients achieve satisfactory control of their colostomy.

A colostomy is not to be desired, but it is in most instances a good substitute for a bad situation.



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(Southern Medical Journal, May, 41: 408-412)

TAJ:CBH

CHRONIC PROSTATITIS—The Management and Prognosis

By J. L. Davis, M.D., Jackson, Miss.

Condensed from the Mississippi Doctor

THE clinical importance of chronic prostatitis lies in its prevalence and in its peculiar tendency to persist and to progress unless adequately treated. There are few protracted diseases which deserve the term "chronic" more than this type of "prostate trouble," and like all such chronic diseases, some one of which is common to all types of practice, chronic prostatitis is cured, if at all, only by the perseverance of the physician. Unfortunately, there exists among the profession an understandable, yet unjustified, skepticism as to the curability of chronic prostatitis which militates against the perseverance and resourcefulness often required to bring about a successful event. In briefly reviewing the status of this subject, it is the purpose of this paper to reaffirm the urologists' faith in the curability of chronic prostatitis.

ETIOLOGY. A small number of these prostate infections are truly gonococcal, that is up to about six to eight months following an attack of gonorrhea.

Others are post gonorrheal—non-gonococcal infections. More than 60 per cent of all infections of the prostate, however, are due to other initiating causes such as the following:

1. Upper urinary tract infections.
2. Post instrumental urethritis.
3. Strictures of the urethra.
4. Focal infections elsewhere in the body.

Whatever the initiating causes or the contributory factors involved at the outset, the infection owes its chronicity to the peculiar structural complexity of the prostate gland which favors retention of infection.

SYMPTOMATOLOGY. The symptomatology of chronic prostatitis presents no constant combination which might lead to an inferential diagnosis. In about 25 per cent of the men who exhibit pus cells in the prostatic expressions, there are no symptoms, but this by no means implies that the disease is pathogenically quiescent.

If any one symptom can be regarded as pathognomonic of chronic prostatitis, it is the well known "morning drop." Its appearance hastens the guilty and the curious alike to a diagnosis of unsuspected pre-existing prostatitis. The "morning drop," sometimes associated with diurnal moisture at the meatus, and itching and tickling along the urethra, is the anterior urethra's exudative response to bacterial toxins or organisms liberated from the infected prostate.

DIAGNOSIS The diagnosis of chronic prostatitis requires microscopic study of the prostatic expressions. Palpation yields little information of value. Wherever the aforementioned symptoms exist, diagnostic massage is in order. Furthermore, no complete or general examination in the male, in health or disease, is truly complete without diagnostic massage of the prostate, and study of the prostatic secretion, unless there is a definite contraindication.

TREATMENT. Prostatic massage is basic treatment in every case. The interval between massages should be 3 to 4 days, not as long as a week. Rarely more than 6 to 8 in a series; a stationary peri-

od response is usually reached between sixth and eighth massage. Rest interval of 4 to 6 weeks for adjunctive therapy, and investigation of foci. Usually not more than 2 or 3 courses are required, interspersed by rest intervals. Such prolonged therapy must be anticipated and explained to the patient.

In the vast majority of cases there is no further need of the sound beyond the demonstration that it is not needed. A No. 24 sound is employed at the outset of treatment or following the first course of massage; its purpose is to detect stricture or contracture of the vesical neck. In non-responsive cases full dilatation up to 26 or 28 F. is indicated for the purpose of opening the prostatic duct orifices and to promoting evacuation of retained or inspissated secretions.

Penicillin is the drug of choice because of its selective action on the coccal infections which predominate in chronic prostatitis. The sulfonamides, notably sulfadiazine, are also of great value. The concurrent use of penicillin and a sulfonamide is justified in the more serious or more complicated cases.

Obvious dental and tonsillar infections should be removed in every case of prostatitis. In many cases of chronic prostatitis, an exhaustive search for dental and tonsillar foci must be prosecuted, and if such infections are found they must be removed. The causal relationship between dental and tonsillar infections and chronic prostatitis can no longer be questioned.

In conclusion, it is pertinent seriously to consider the psychosomatic aspects of the problem. I know of no phase

of urologic practice wherein the "treatment of the patient" is so important. All males are deeply concerned with the slightest affection of the sex organs. Serious mental disturbances out of all proportion to the severity of the organic disease are common among victims of chronic prostatitis. In handling these cases the physician must display confidence in the end results of his treatment, avoid radicalism and psychic trauma and enforce a stern discipline upon the patient.



BH:RDD



SEASONAL VARIATIONS IN HEART AND CORONARY DISEASE

Many investigators have searched for a possible relationship between environmental temperature and heart disease. In order to demonstrate this relationship, Brown and Pearson studied the vital statistics for New York City over a 10 year period in comparison with the meteorological data.

It was found that a difference of 18.8% occurred between the maximum number of deaths in December and the low in August for deaths from all types of heart disease. For coronary disease, the magnitude of change was 24.2%.

The average monthly temperature was found to vary inversely with the changes found in deaths due to all forms of heart disease and to coronary disease but the relative humidity in the locale studied did not follow the changes in death rate. The curve of variation in average differences in the maximum and minimum temperature followed closely that for deaths due to all forms of heart disease and coronary disease.—*Herbert R. Brown, M.D., and Raymond Pearson, M.D., American Heart Journal, May, 35: 763-768, 1948.*

I.B.L.:L.B.L.

THE SHOULDER-HAND SYNDROME IN REFLEX DYSTROPHY OF THE UPPER EXTREMITY

By O. Steinbrocker, M.D., New York City

Condensed from the Annals of Internal Medicine

A VARIETY of seemingly unrelated clinical disorders, usually considered distinct entities, have been described in the surgical and medical literature. These conditions include causalgia, Sudeck's atrophy (post-traumatic osteoporosis), painful disability of the shoulder following coronary occlusion, post-infarctional sclerodactylia, pulmar and digital contractures as well as Dupuytren's contracture, the swollen atrophic hand associated with cervical osteoarthritis, certain changes in the paretic limbs of hemiplegics. In this group belongs the idiopathic shoulder-hand syndrome. It is becoming increasingly apparent that, although the etiology of these various syndromes may be different, many of their clinical features, and probably the neurovascular mechanisms underlying their development, are very similar, if not identical.

Certain clinical features common to these disorders have been termed reflex dystrophy. This designation refers chiefly to the characteristic vasomotor and trophic disturbances in the affected

extremity provoked by an etiologic factor through neurovascular reactions. The vasomotor and trophic symptoms usually are presumed to arise from reflex stimulation of the sympathetic nerve supply.

The present report is based on a study of 42 cases of reflex dystrophy of the upper extremity for periods of one month to nine and one-half years. Thirty-six of these patients presented the shoulder-hand syndrome due to a variety of causes or associated factors shown in Table I.

TABLE I

Reflex Dystrophy of the Upper Extremity. Etiology in 42 Cases

Idiopathic	11
After myocardial infarction	9
Post-traumatic	5
Post-hemiplegic	5
Post-herpetic	2
Diffuse Vasculitis	2
Cervical osteoarthritis	2
Panniculitis	1
Gonococcal arthritis	1
Multiple or inconclusive	4

N. B. 36 cases presented the shoulder-hand syndrome; 6 cases showed only painful swelling and atrophy of hand.

Diagnosis of the shoulder-hand syndrome can be facilitated by a clear-cut understanding of the usual progress of this disorder. It passes through several

stages in each of which the signs resemble different diseases. The syndrome may be divided roughly into three stages.

THE FIRST STAGE, which usually lasts three to six months, consists ordinarily of the appearance of painful shoulder disability followed by swelling, pain and stiffness of the hands and fingers. The onset may be gradual or sudden. Complaints may arise first either at the hand or shoulder followed by symptoms at the other location, or both parts may be affected simultaneously. Pain and limitation of motion develop at the shoulder girdle with diffuse tenderness there, very much as in peri-arthritis or bursitis. The swelling of the hand and fingers is uniformly distributed and, as a rule, yields little or no pitting to pressure, although in acute onsets striking pitting may be encountered at times. The skin of the hand and fingers becomes smooth and taut. The color of the affected hand is apt to be a dusky pink or red at first. Later, the swollen tissues become pale or even cyanotic. Limited mobility at the finger joints is noticed. Attempts at passive motion at these articulations often induce pain. At this stage roentgenograms of the hand usually exhibit slight, if any, osteoporosis,

excepting in traumatic disorders when the decalcification, mottled or "ground-glass" appearance, of the wrist or even of the whole hand or extremity may develop with astonishing rapidity.

THE SECOND STAGE, which likewise is apt to last three to six months, is characterized by gradual relief of the painful shoulder dysfunction and resolution of the swelling of the hand. As the swelling subsides, the stiffness and flexion deformity of the fingers becomes more pronounced in cases with progression. Atrophy of the subcutaneous tissue and intrinsic muscles of the hand may now begin to become apparent. Rolling up of localized areas of the palmar fascia may be noticeable, or early signs of a Dupuytren-like contracture with or without its cutaneous callus may appear. Early trophic changes in the skin are observed for the first time. Patchy osteoporosis of the bones of the hand becomes more striking in the roentgen-ray films. The cutaneous temperature, previously elevated, begins to fall. The blood flow to the limb diminishes.

THE THIRD STAGE, which lasts months or goes on to irreversible alterations, is characterized by the marked progression of trophic changes in the hand. The

skin becomes smooth, glossy and drawn. Atrophy of the subcutaneous tissue advances. The hand shows great atrophy of the interosseous muscles with severe limitation of motion at the metacarpophalangeal and interphalangeal joints. Contractures of the flexor tendons occur often at this stage, particularly on the ulnar side. The roentgenograms at first show spotty decalcification of the small bones of the hand and of the metaphyses of the long bones. Osteoporosis of the humeral head often occurs when shoulder disability is prolonged. Later this bone atrophy may become widespread and diffuse.

MECHANISM OF THE SHOULDER-HAND SYNDROME. According to the rapidly growing impression, external trauma constitutes only one source of reflex dystrophy. As we have stated, the syndrome arises from many different causes. A more inclusive physiologic clarification, therefore, is in order. It must take into account these pertinent clinical facts: (1) conditions of widely separated location, such as myocardial infarction, herpes zoster, peripheral injuries, etc., can cause practically the same clinical picture; (2) this disorder seems to involve not only the autonomic system, parasympathetic as well as sympathetic, but also

the motor pathways to muscles; (3) the disturbance does not show a definitely segmental distribution; and (4) it is often improved or abolished by interruption of the sympathetic nerve supply to the upper extremity.

The mechanism can be conceived as a widespread disturbance of the internuncial pool. Recent neurophysiologic investigation shows this pool to be an extensive network of interconnecting neurones in the central gray matter, extending over many segments. At these levels potential connecting pathways are formed between incoming impulses and motor neurones of either the sympathetic (posterolateral) or anterior horn cells.

The internuncial disturbance may be visualized as arising in this manner: Following a myocardial infarction, for example, afferent stimuli traverse the cardiac nerves to enter the cord at levels T1-T4. These new and profound stimuli strongly activate the internuncial pool in that area of the cord. The disturbance spreads upward with effects on the anterior horn cells, causing disability of the shoulder muscles. It travels downward to involve the sympathetic neurones of the lateral horn cells innervating the upper extremity.

DIFFERENTIAL DIAGNOSIS. Dif-

ferential diagnosis involves gout, scalenus anticus syndrome, rheumatoid arthritis, bursitis, periarthritis and scleroderma.

TREATMENT. Immobilization of the affected parts in conjunction with the various modalities of physiotherapy—heat in all forms, heliotherapy and massage, have been used extensively. These measures, however, apart from giving temporary palliation, seem to exert little influence on the course of the disease.

Excellent results are obtained with paravertebral sympathetic infiltration with a local anesthetic. The newer technics of administering stellate and upper dorsal ganglion blocks by the anterior or anterolateral approaches, without necessitating hospitalization, constitute real progress in these therapeutic procedures. In addition to sympathetic ganglion infiltration, brachial plexus block has been employed by us.

Following plexus block shoulder disability improves often, but the hand signs are not influenced by this procedure. Adequate sympathetic response evidently cannot be effected by this approach. Shoulder signs resolve spontaneously much more often than the hand changes so that treatment must be based on the responsiveness of these most serious features lest trophic alterations develop, after which repeated sympathetic block is not as apt to be successful as in the early phase.

Sympathetic surgery is employed in reflex dystrophy, when repeated sympathetic blocks give only partial relief of symptoms, or when the response is effective but not lasting. The patient's general condition must be suitable. Several procedures are available: periarterial sympathectomy, sympathetic ramisection and ganglionectomy.

RDD:RDD



3,035 ARMY HOSPITAL BEDS SET ASIDE FOR VETERANS

A total of 3,035 beds in Army hospitals throughout the United States have been allocated for treatment of veterans, Major General Raymond W. Bliss, Surgeon General of the Army, announced today. The allocations were made at the request of the Veterans Administration.

Beds allotted for veterans may be used partly for treatment of chronic disabilities, with 325 set aside specifically for tuberculosis cases at Fitzsimons General Hospital in Denver. None of the beds allocated will be used for patients who could be treated in domiciles.—*Release, Technical Information Office, Department of the Army, Washington 25, D. C.*

THE TOXICITY OF BENADRYL: REPORT OF A CASE AND REVIEW OF THE LITERATURE

By Bernard A. Sachs, Capt., M.C., A. U. S., Baltimore

Condensed from the Annals of Internal Medicine

EVER since the first clinical report on benadryl toxic reactions have been mentioned frequently and prominently. A recent instance led us to review the literature and attempt to ascertain the frequency and character of toxic reactions and the relation of reaction to dosage.

FREQUENCY OF REACTIONS. Side reactions occurred in 46.4 per cent of 1210 patients. In the 836 patients concerning whom adequate figures are given, drowsiness, found in

34.2 per cent, was the most frequently encountered toxic reaction. The soporific effect varies from a mild drowsy sensation to a deep slumber lasting 18 hours. Dizziness was the second most common reaction and was found in 14.1 per cent. Dryness of the oral cavity was found in 5.6 per cent, nausea in 2.6 per cent and nervousness in 2.3 per cent of the 836 patients. These are the most common reactions. Other reactions are noted in Table I.

TABLE I. *Classification of Toxic Reactions Encountered with Benadryl**

I. Neuro-psychiatric

Drowsiness
Dizziness
Nervousness
Weakness
Fatigue
Faintness
Paresthesia
Difficulty in coordination
Mental confusion
Headache
Amnesia
Lassitude
Choking
Slurred speech
Malaise
Disoriented
Tinnitus
Stupor
Narcolepsy

Somnambulism
Exhaustion
Irritability
Giddiness
Slow speech
Athetoid movements
Acute melancholia
Peripheral neuritis
Insomnia
Tremor
Sense of relaxation
Mental lethargy
"Walking on air"
"All gone feeling at pit of stomach"
Acute hysterical reaction
(i. v.)
Apprehension (i. v.)
Hallucinations (case report)
Jerky rapid speech (case

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(*Annals of Internal Medicine*, July, 29: 133-145)

- report)
- II. Alimentary
 - Dry oral cavity
 - Nausea
 - Vomiting
 - Epigastric distress
 - Bad taste
 - Diarrhea
 - Abdominal cramps
 - Indigestion
 - Heartburn
 - Sore tongue
 - Constipation
 - Taste like chloroform (i. v.)
 - III. Cardiovascular
 - Orthostatic hypotension
 - Hypotension
 - Palpitation
 - Facial edema
 - Elevated pulse
 - Excessive perspiration
 - Cold extremities
 - Vasospasm of fingers
 - Pallor
 - Collapse
 - Shocklike reaction
 - Hot flashes
 - Bleeding tendency
 - Chills (i. v.)
 - IV. Respiratory
 - Asthma
 - Dry nose
 - V. Genito-urinary frequency
 - Discomfort
 - VI. Muscular, aching, twitching
 - Low back pain (i. v.)
 - VII. Ocular
 - Blurring of vision
 - Difficulty in ocular accommodation
 - Dilated pupils
 - Photophobia
 - Dimmed vision
 - VIII. Miscellaneous
 1. Generalized pruritus (i. v.)
 2. Aggravation of allergic symptoms

* Symptoms designated (i. v.) were seen only after intravenous administration.

Toxic reactions appear to be more frequent when benadryl is given intravenously, occurring in 65 per cent of 43 patients.

CHARACTER OF REACTIONS. Numerous untoward reactions have been described and may be roughly classified into eight groups: (1) neuro-psychiatric; (2) alimentary; (3) cardiovascular; (4) respiratory; (5) genito-urinary; (6) muscular; (7) ocular; and (8) miscellaneous. No alterations were noted in blood counts, blood chemistries and numerous other laboratory procedures repeated over long periods of time. No cumulative

toxic reactions were noted in patients taking the drug for as long as seven months.

Except perhaps for the occurrence of asthma after benadryl in patients sensitive to acetylsalicylic acid (each of these drugs contains a coal tar radical), the mechanism of toxic reactions has not been explained adequately.

RELATION OF SYMPTOMS TO DOSAGE. It may be stated only generally that untoward reactions are more common with higher doses. Profound reactions have occurred with a single 50 mg. dose, and 600 mg. has been given in one day without toxic effect. It ap-

pears, however, that the most severe toxic reactions occur most often with higher doses. Toxic reactions occur on some occasions and not on others with the same dosage in the same patient. No correlation has been apparent between the occurrence of toxic reactions and either the nature of the disorder for which the drug was given or the character of the therapeutic result.

CONTROL OF TOXIC REACTIONS. Side reactions can be made minimal in severity by reducing the dosage, giving the drug after meals, ordering the initial dose in the evening and prescribing stimulants such as black coffee, caffeine, ephedrine or amphetamine sulfate. The last is the most effective stimulant. If the untoward effect is mild the patient may continue at the initial dosage. A large number of patients develop tolerance

and the untoward effect gradually disappears. Only one case of prolonged toxic effect after cessation of therapy has been reported. Addiction, in those who react with sleepiness, has not been encountered. Late side reactions, occurring for the first time after several months of therapy, have been reported by one author. Benadryl should not be given in conjunction with sedatives or hypnotics because of the additive effect.

The patient must be warned about the possible toxic reactions since these may bring about other effects varying from mere embarrassment to severe injury. These are usually due to the soporific side action. The drug may be a serious hazard when used by persons operating automobiles or machinery, or walking unescorted through traffic.

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KAE:KOE



CALLING ALL DOCTORS

PAGING doctors away from their offices will be the job of a special radio station to be erected in New York. Tel nserphone, Inc., has now been granted a construction permit by the Federal Communications Commission to test the feasibility of the plan.

The station will provide only one-way transmission. It will serve the immediate New York area. Each doctor enrolled for the service will carry a small portable receiver. Each will be assigned an individual code number. This will be repeated on the air at intervals until the doctor reports to the station by telephone.—*Science News Letter*, July 10, 54: 25, 1948.

AN EVALUATION OF THE PEPTIC ULCER PROBLEM

By Sara M. Jordan, M.D., Boston

Condensed from the Medical Annals of the District of Columbia

ETIOLGY. Peptic ulcer is regarded as the penalty for worry, overwork, overambition, maladjustment to life's problems, and all the stress and strain that confront modern man. But that is by no means the whole story. The old theory of the ulcer diathesis still holds its ground. In the individual with ulcer diathesis a certain combination of psychic and somatic factors, such as tension and worry on the one hand, and smoking, food difficult of digestion, irregular eating habits, lack of rest and exercise, and alcohol, on the other, will invariably induce a recurrence of ulcer and may often be justly considered to be the cause of the first occurrence. I say certain combinations of these factors, because it is my belief that the pernicious influence of tension, fatigue and worry, can, in most instances, be frustrated by meticulous care in the avoidance of smoking and alcohol, the choice of food, and the use of adequate rest and exercise. Practically speaking, at all times the

avoidance of smoking and alcohol, care in diet, and the use of adequate rest and exercise will antidote the nervous strain of modern life for the ulcer patient, and at times of great emotional or psychic stress and strain patients with ulcer should use special care in the matter of rest and careful food, as well as in their habitual avoidance of smoking and alcohol.

Associated with this group of secondary causative factors are two physiologic abnormalities which result from the action of these factors, namely, spasm and hypersecretion of hydrochloric acid. In cases of active ulcer, spasm is usually visualized roentgenologically in the pylorus, duodenal bulb, and in the deep peristaltic waves which may traverse the stomach itself. In the jejunal ulcer, it is usually seen at the gastrojejunal stoma. Excessive secretion of acid may be not only in high concentration, but may also be quantitative; this is especially true in those cases in which nocturnal secretion is as high or

higher than diurnal secretion. These must be combated by treatment.

DIAGNOSIS. The history in cases of peptic ulcer may be the typical textbook history of upper abdominal distress, the site of which the patient usually indicates by placing his whole hand on the epigastric area, the distress occurring at a uniform interval after the meals and relieved by any kind of food, warm or cold. Such a history point to spasm and hyperchlorhydria at least and is frequently diagnostic of ulcer. Occasionally the crater or deformity of ulcer is not visualized by X-Ray examination, and in such cases, if the history is short, these findings may, in my opinion be regarded as diagnostic of a pre-ulcer state, which with good prophylactic management may never develop into an actual ulcer.

The chemical findings of importance are the hydrochloric acid in the gastric contents after a test meal, and occult blood in the stools. The acid level is significant in the duodenal and jejunal ulcers, both as a part of the diagnostic data and as an index of the effectiveness of treatment. This statement is regarded by

some gastroenterologists as unproved by experience, but our experience leads us to the belief that it is fact. In gastric ulcer a change from normal or high acidity to an achlorhydria must be considered suggestive, though not absolutely conclusive, of malignant changes. I have never seen achlorhydria in a patient with active duodenal or jejunal ulcer.

It is essential to have confirmation of the diagnosis of ulcer by X-ray examination. The importance of accuracy of diagnosis for the individual in question is so great that no diagnostic procedure, particularly such an effective one as X-Ray examination, can be omitted. Diagnostic errors by X-ray examination are more frequently made on the negative than on the positive side; i.e., ulcers are more often not found when present than suspected when absent. Peptic ulcer must be looked for at any point from the lower esophagus through the second part of the duodenum in the unoperated patient, and in the patient who has had gastric surgery in the jejunum as well.

THERAPY. Two new forms of treatment, vagotomy and the

use of enterogastrone, are still unproven, and while the latter can be used with complete safety and results awaited, the surgical procedure of vagotomy must, in my opinion, still be regarded as experimental and possibly deleterious until proved otherwise by time and experience.

What then of the efficacy of the tried and true older methods of treatment? It is my contention that every ulcer, if detected early and treated intensively, can be healed and kept healed. Late diagnoses, half-hearted treatments, and inadequate education of the patient as to the nature of the disease, are responsible, I believe, for the disastrous complications of ulcer and the disability which this disease causes.

For us there is for the active ulcer no other truly satisfactory solution than hospital treatment, with the opportunities which it affords for rest and neutralization of acidity, two principles which are the keynote of good treatment, and for close observation and education of the patient. The time required is 3 weeks, 17 days of which are spent at complete bed rest. Food is gradually increased according

to a Sippy schedule modified for the individual's requirements. Antacid medication, now usually one of the aluminum hydrate products, is used to a degree necessary for neutralization, and this is checked by gastric analysis for adequacy. Antispasm therapy, usually with belladonna and the application of heat, is used in all cases in which irritability of stomach or duodenum, or of small and large intestine, has been demonstrated, together with supplementary vitamin therapy, and in malnutrition cases supplementary protein in the form of amino acids. And of equal importance is the opportunity which hospitalization provides for the close co-operation of physician and patient in planning the life routine of the patient after hospital discharge, in revealing and helping to solve psychogenic deterrents to the success of treatment: and finally, in weaning the patient from smoking, to which so many ulcer patients are addicted. And here I would like to state that the healing and maintenance of healing of peptic ulcer are, in our experience, absolutely incompatible with the habit of smoking. We tell

our patients unequivocally that smoking must be "out for life."

The treatment of ulcer complications should be briefly discussed. Hemorrhage, when of more than one occurrence, is a very serious complication. Strangely and as yet unexplainedly, there is an apparent tendency to hemorrhage in cases of patients who have had multiple hemorrhage, even from the new jejunal ulcer which may develop in cases resected for this complication. We believe now that whenever patients have not yet had completely adequate medical treatment in the past it is wise to use this conservative method of treatment first before surgery.

The immediate treatment of massive hemorrhage is, in our hands, likewise conservative. The bleeding ulcer is a very acute ulcer with an exposed blood vessel. Although the Meulengracht theory is that hunger contractions are best controlled by the early administration of food, we still believe that there is usually nausea rather than hunger shortly after a hemorrhage, and that 24 to 48 hours without food and later the gradual administration of very easily digesti-

ble liquids, such as malted milk and strained gruels, require less work on the part of the stomach, reduce the possibility of further massive hemorrhage, and promote healing. The usual supportive measures of intravenous fluids, transfusions, and narcotics are invaluable.

Obstruction as a complication of ulcer is never an acute emergency. Its true character can always be evaluated and the important differentiation made between obstruction due chiefly to inflammation and edema on the one hand, and on the other, to scar formation, the former being relivable with medical treatment and the latter requiring surgery. Dr. Wilkinson of our Clinic has planned a method of drainage by which the patient is alternately fed and drained via a nasal tube left in situ—fed on the hour with small quantities of malted milk, strained gruel with which alumina hydrate and an amino acid preparation are mixed. The tube is clamped for a half hour and unclamped for the next half hour. The quantities of intake and drainage are measured, and when drainage continues after 3 or 4 days to equal or exceed in-

take, we believe there is no relief of obstruction and such cases should be considered obstructive because of scar tissue; whereas, if intake gradually exceeds drainage, the case is relievable. This method seems to have value not only in distinguishing those cases immediately relievable, but in giving valuable prognosis for the future.

The complication of carcinoma in gastric ulcer is a problem of great importance. Although a single occurrence of gastric ulcer is innocuous if it heals completely, recurrences harbor the potential menace of malignancy. It is, therefore, our policy at present to be as certain as humanly possible by the clinical course, X-ray follow-ups and gastroscopy that every gastric ulcer on its first occurrence is completely healed, and secondly, that with any recurrence, resection should be done.

When is an ulcer intractable? We consider it so, obviously, when there is acute perforation, when there is obstruction due to scar formation, and when there have been multiple hemorrhages in cases in which strict medical management has never been

tried. Surgery is likewise indicated in the acute intractable hemorrhage, occasionally encountered in cases of caloused ulcer with an open blood vessel in its center. Wherever in the gastric ulcer, malignancy, present or potential, must be suspected because of failure to heal completely or because of recurrence, resection must be done unhesitatingly. It is our present opinion that in such cases the frequently received pathologic report of benign or even of healing ulcer must not deflect one from this policy. And finally, there is the ulcer which gives intractable pain, practically always due to erosion of the ulcer into the pancreas or the left lobe of the liver, and which has no base; this is unhealable under even the most meticulous medical management.

The intractable patient, on the other hand, is, in our opinion, not a promising candidate for surgery, i.e., unless vagotomy proves to more successful than we dare to hope, or unless, as in some cases, by the ordeal of surgery the patient is sufficiently impressed to become tractable.

THE PRESENT STATUS OF IMMUNIZATION AGAINST DIPHTHERIA

By Donald T. Fraser, M.D., Toronto

Condensed from the Bulletin of the New York Academy of Medicine

DIPHTHERIA has not been controlled by isolation and quarantine. Essentially, the control rests upon the simple principle of producing the most effective degree of active immunity in the greatest number of persons as early in life as possible and maintaining that immunity indefinitely.

There is a close analogy between active immunization against the diseases tetanus and diphtheria. Their respective toxoids readily call forth an antitoxic immunity which may be maintained at a high level when booster doses are given. This is perhaps best illustrated by the experience in the armed forces in regard to tetanus which was virtually eliminated in the recent war. The essence of this success lay in the fact that a booster dose of toxoid was accepted as a routine procedure.

The unpublished results of tetanus antitoxin titrations of blood samples of some 2000 members of the armed forces indicate that all who had re-

ceived the routine inoculations of toxoid, including the annual booster dose, showed a protective level of antitoxin ($> 1/100$ u/cc). In contrast, in a small group of 53 who had not had a booster dose, only 62 per cent showed antitoxin at or beyond this level.

The effectiveness of minute doses of diphtheria antigen when given as a secondary stimulus is illustrated by the fact that a Schick test with control of diluted toxoid will produce a conversion from Schick positive to Schick negative in approximately 70 per cent of persons. A secondary stimulus of Schick test toxin alone which represents only 0.001 l.f. may give on the average a tenfold increase in antitoxin. In a group of 340 persons, 95 per cent showed a response to toxoid when given as a secondary stimulus. In general, the response in antitoxin varied with, though not in direct proportion to, the strength of the stimulus. In pre-school children where sensitivity to toxoid is not a

problem, a booster dose of 20 to 40 Lf is desirable. In school populations, in order to avoid the necessity of a preliminary sensitivity test, 3 or 4 Lf of toxoid may be recommended as a booster dose. A similar dose is effective in adults.

On the average, in a non-diphtheria environment, there is a loss in antitoxin of 60 per cent within two years as shown in a group of children studied in 1937. That is to say, taking the average antitoxin level of a group of immunized children as 0.33 u/cc, the average unitage has dropped to 0.13 u/cc in two years. Other studies have shown that from 10 to 30 per cent of persons revert to Schick positive within three to five years. It is quite apparent then that no success in the control of diphtheria may be expected without the booster dose.

Any diphtheria toxoid given in two or three doses with an interval of three to six weeks may be expected to act as an effective primary stimulus. A booster dose given six to twelve months later will result in a protective level of antitoxin in well over 90 per cent. Without at least one

booster dose, the immunization procedure must be regarded as incomplete. In children immunized in infancy a second booster dose is recommended between the ages of 18 and 24 months and a third when the child enters school. In older children a booster dose is recommended every four or five years. In the armed forces approximately 50 per cent were Schick positive.

Before diphtheria is effectively controlled, adults will be required to be immunized. The administrative difficulties as well as the problems of reactions to toxoid are obvious. A preliminary screening with a Schick test and control of diluted toxoid (0.2 Lf/cc) which serves also as a "reaction test" is essential.

The use of multiple antigens will in some measure reduce the administrative burden of immunization.

With 600,000 cases of diphtheria per year reported in Europe, there is no basis of complacency. Nothing less than a vigorous campaign of active immunization with a schedule of inoculations possibly more rigorous than necessary, is required.

CLINICAL USE OF INTRACAINE IN OTOLARYNGOLOGY

By M. J. Tamari, M.D., and A. E. Sukis, M.D., Chicago

Condensed from Eye, Ear, Nose and Throat Monthly

ONE of the latest and most useful local anesthetics has been introduced under the name of Intracaine (Squibb) (beta-diethylamino-ethyl-par-aethoxy-benzoate-hydrochloride).

Intracaine is readily soluble in water and its pH is slightly acid. The subcutaneous MLD (minimal lethal dose) of Procaine is 800 mg. per kg., while that of Intracaine is 565 mg. per kg. Intracaine causes no pain on injection and no subsequent tissue damage occurs. Anesthesia follows immediately and is prolonged, and 0.5% solutions of Intracaine are as effective as 1.0% solutions of Procaine.

Intracaine can be used with all the useful vasoconstrictors. The clinical use of a cocaine substitute is the final test of its value and the usefulness of Intracaine has been evaluated in a total of 1,603 otolaryngologic procedures where infiltrations and block anesthesia techniques could be used for satisfactory local anesthesia.

For this clinical investiga-

tion, Intracaine was prepared by dissolving bulk crystals in either distilled water or physiological saline. These solutions were prepared in 0.5% and 1.0% solutions, and were sterilized either by boiling for ten minutes or autoclaving at 15 pounds pressure for twenty minutes. No deterioration of the anesthetic properties of this agent were found, and prepared solutions were kept in sterile containers at room temperature. Epinephrine was added at the time of use in the concentration of 6 minims of 1:1000 per 100 cc.

The amounts given varied according to the age, sex, weight, and apprehension of the patient, the time available for premedication in clinic patients, and the type of procedure that was to be done. Seconal 1½ grs. was given for minor procedures in ambulant patients where preoperative time was limited. Nembutal up to grs. VI was preferred for all hospital cases. Morphine was given routinely if believed that either nervousness or pain would be benefited.

Of the total 1,603 cases in which the infiltration and block anesthetic techniques for local anesthesia were employed 111 Ear operations, (Mastoidectomies, Fenestrations, and Ear Plastics), 128 Nasal operations, (Submucous Resections and Rhinoplasties), and more than 500 Local Tonsillectomies were performed with Intracaine, prepared as described above, as the anesthetic agent. In addition to these otolaryngological procedures in all other major surgery such as Osteomyelitis of the Skull, Frontal and Themoid operations, in which a local anesthetic agent could be reasonably employed, Intracaine was used.

In our opinion Intracaine approximates the criteria of the chemical and physiologic properties for the ideal local anesthetic. It is readily soluble in water, is stable on

sterilization and can be kept a reasonable length of time without losing its anesthetic properties. The pharmacologic and experimental background of this agent indicate the relative safety in its use clinically. The concentrations used in this series were half those formerly used with Procaine with no sacrifice in anesthetic quality but with a lowered toxicity, which was further lowered by the use of barbituric acid derivatives preoperatively. There was no waiting period for the onset of analgesia and the duration of the anesthesia was well over the operative procedures for all cases reported. No pain on injection due to Intracaine was observed, and no irritating after effects were seen. There were no toxic reactions in this series.

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FOH:KOE



Veterans Administration has inaugurated a comprehensive follow-up program, designed to enhance and prolong the effects of hospital treatment, among the thousands of veterans suffering from tuberculosis.

More than 13,000 veterans suffering from tuberculosis now are under the care of VA. A total of 80,763 veterans are receiving compensation or pensions for tuberculosis.

Cooperating in the program are all of VA's 126 hospitals and 70 regional offices.—*Release, Veterans Administration, Washington 25, D. C.*

DERMATOLOGIC THERAPY

By M. J. Costello, M.D.

Condensed from New York Medicine

I SHALL endeavor to present not only some of the recent advances in dermatologic therapy but the dermatologic treatment which is simple, effective and which may be easily executed by the non-dermatologist.

ACNE AND ROSACEA. The superficial type of acne may be controlled in a measure by diet, eliminating iodized salt, chocolate, white bread, beverages, and excessive amounts of carbohydrates. The mechanical removal of comedones with the comedo-scoop, opening of pustules and the expression of their contents, and the application of the dull curette, are of value. Exfoliating doses of the air cooled Kromayer light applied to the affected areas augment the aforementioned measures. The hematinics should be prescribed when secondary anemia is present. Vaccines are of no value.

Rosacea has been difficult to treat. Until recently, the conventional form of therapy consisted of diet, eliminating alcohol, coffee, tea, and highly seasoned foods. Dilute hydrochloric acid was prescribed for hypo-

chlorhydria and indigestion, which frequently accompanied this condition. The following prescription makes the above measures hardly necessary and is an effective ointment for rosacea. It is applied once twice a day.

	Gm.	cc.
R/ Salicylic Acid	1	0
Sulphur Precipitate	1	0
Ungt. Quinolol Com-	1	5
pound (Squibb)		
Aquaphor to make	30	0

HYPERTRICHOSIS. Electrolysis by means of a fine needle attached to the negative pole of a galvanic current is still the safest method for the permanent removal of superficial hair. The method of permanent removal with the fine needle attached to the short wave frequency is more rapid. It is more likely to cause scarring and there is greater tendency to regrowth of hair unless performed by a skilled operator.

SYCOSIS BARBAE. The effective treatment for this one-time inveterate dermatosis is unguentum quinolor compound (Squibb). It should be applied diluted at first (1:4) with petroleum jelly at night, and before shaving. It should be continued indefinitely only before

shaving. Impetigo of the bearded region often resistant to penicillin ointment and ammoniated mercury ointment, is amenable to quinolor compound ointment.

VENEREAL WARTS. These lesions are effectively treated by 20 per cent solution of podophyllin in 95 per cent alcohol. The alcoholic solution is applied accurately to the entire surface of each digitate verruca and washed off in six hours with soap and water. This drug is of no value in the treatment of ordinary verrucae.

ERYSIPELOID. Erysipeloid of Rosenbach of the fingers contracted while cleaning or handling fish has been treated with excellent therapeutic response by the intramuscular injection of penicillin 40,000 units every three hours or 300,000 units in oil daily. It is well known that penicillin is effective in the treatment of erysipelas.

CUTANEOUS TUBERCULOSIS. Charpy's treatment, the most successful known, consists of large doses of Vitamin D₂ in alcohol by mouth. He gives three doses of 15 milligrams (i.e. 600,000 i. u.) of vitamin D₂ in alcoholic solution in the first week, two doses in each of the next three weeks, and then one dose weekly for the next three weeks, and then one dose weekly for

the next four months; treatment is continued for three to six months after apparent cure. He suggests a salt poor diet, including two to three glasses of milk daily and large portions of vegetables. Charpy and the European investigators have insisted on the vitamin D₂ in alcoholic solution, but we have had good results in the treatment of patients with true tuberculosis of the skin by the administration of any of the vitamin D₂ preparations obtainable—calciferol (prepared by irradiating ergosterol) in the form of drisdol, viosterol, ertron, darthronol, 50,000 units is prescribed three times a day.

LUPUS ERYTHEMATOSUS. The gold salts such as gold sodium thiosulphate is the best known treatment for lupus erythematosus of the chronic fixed, discoid type. They are contraindicated in acute and subacute lupus erythematosus of the disseminate type. Bismuth subsalicylate by intramuscular injection is of value in the chronic type of lupus erythematosus. The effect of both these drugs is augmented by the intramuscular injection of crude liver extract. Crude liver extract has been of temporary value in the treatment of acute and subacute lupus erythematosus. The arsenicals of the organic type have been adminis-

tered in the treatment of chronic lupus erythematosus when gold and bismuth have failed. Mapharsen (oxyphenarsine hydrochloride) is the least toxic—0.02 Gm. in 5 cc. of distilled water injected intravenously twice a week for 10 doses. Vitamin E complex is of limited value in the treatment of the superficial types of lupus erythematosus.

PEMPHIGUS VULGARIS. 1. Car-
CSW:RDD

barsone 0.25 Gm. daily or twice daily for 10 days. 2. High vitamin and high caloric diet. 3. Crude liver extract intramuscularly 3 cc. twice weekly. 4. High protein diet to which are added large doses of the protolytes. 5. Transfusions of whole blood. 6. Plasma. 7. Local therapy consists of potassium permanganate baths and 1:3000 acriflavin in vaselized gauze.



RICE DIETS

In a paper read before the Fourth International Congresses on Tropical Medicine and Malaria, Washington, D. C., May 10-18, 1948, entitled "Malnutrition and the Rice Problem," Dr. W. R. Aykroyd, Director of the Nutrition Division of Food and Agricultural Organization, discussed the role of rice as the staple of more than half of the population of the world, the most important of the cereals. The greater part of India, South China and South Asia base their diet on rice. About 90% of the world's total rice crop is produced in this region. The nutritive value of rice and rice diets is therefore, a subject of great importance. In a sense the development of the modern science of nutrition began with observations and experiments on rice: those which forty years ago in Java demonstrated the relation between milled rice and beriberi. In the rice-eating regions of the world, the general level of health is low in comparison with levels attained in western countries in which wheat is the principal cereal. Investigations among rice-eating populations have provided additional evidence that malnutrition is exceptionally prevalent. The good effect of supplementary foods of high nutritive value, such as milk, on the general health and development in children in rice-eating areas is also an indication of their normally poor state of nutrition.—*Read before the Fourth International Congresses on Tropical Medicine and Malaria, Washington, D. C., May 10-18, 1948.*

THE TREATMENT OF VARICOSE VEINS DURING PREGNANCY BY COMBINED HIGH SAPHENOUS AND SEGMENTAL LIGATIONS FOLLOWED BY THE INJECTION OF THE RESIDUAL VARICOSITIES

By P. J. Shank, M.D., Dayton, Ohio

Condensed from the Ohio State Medical Journal

THE treatment of varicose veins in pregnancy resolves itself into three classes: One, palliative, two, injection of sclerosing agents, three, ligation of the saphenous veins plus injection. One: The palliative treatment, consists in the wearing of elastic stocking or bandages. The elastic bandage merely gives mechanical support to the dilated varices by holding their walls collapsed or compressed to their normal size. Two: Injection of sclerosing solutions in the blood vessels. Sodium morrhuate in one to two cc. doses has been most widely used. Very few systemic reactions are encountered. McPheeters believes reactions occur when too large a quantity of the solution has been injected into one varix of the calf. He advocates the use of a tourniquet to localize the injection solution, thereby to retard the rate of absorption and minimize the allergic response. It may vary from a

fainting spell to surgical shock. It is well to give the patient a preliminary test dose, 24 hours in advance of the actual therapy. Injection of a small amount of sclerosing solution of a test dose suffices to reveal the necessary information. It is considered that .5 to 1 cc. of a 5 per cent solution of sodium morrhuate injected into a varicose vein of medium size is a sufficient amount. If a systemic reaction occurs, the likelihood of minimal manifestations may be expected if small amounts are used. The prompt administration of an appropriate amount of epinephrine hydrochloride will adequately control this emergency.

Three: ligation plus injection. This is an extremely useful approach in my opinion. The site of the varices is marked with brilliant green, in order that they may be identified after surgical preparation. One per cent novocaine is the anesthetic of

choice. In surgical procedure for varices during pregnancy it produces the least amount of general reaction. A small skin incision is made over the fossa ovalis parallel to the inguinal ligament. It is then carried through the subcutaneous fat. The five tributaries: the superficial circumflex iliac, superficial epigastric, external pudendal, lateral superficial femoral, medial superficial femoral, as well as the other accessory veins are divided between forceps and then tied. The saphenous vein is cut between forceps and the proximal segment is doubly ligated at the sapheno-femoral bulb. The distal segment is doubly tied at the lowest point in the incision. The segmental ligations are then done. Small one-to-two-inch skin incisions are made and the veins divided between forceps and tied. The skin is then approximated. Dressings are applied and number eight ace bandages are wrapped from the toes to the groin. The patient begins to ambulate immediately. The sutures are all removed within one week and in the second week injections of the residual varices is started.

Thirty patients have been

carefully selected for this study, 12 of whom gave a history of having relatives who had suffered from varicose veins either before or during pregnancy. Eighteen, or 60 per cent, denied any hereditary history. Ten per cent, or three patients, were primiparous. Seven had two children; 12, or 40%, had previously had three children, and 27% had over this number. Of the 30 patients treated, eight had both vulvar and leg varicosities; 22 had leg veins. The most interesting feature of this study was the period of pregnancy during which the symptoms were first noted, that is, ten, or 30%, first complained during the first month of pregnancy; and ten, or 30%, during the second month; and nine cases during the third month. Thus the majority of cases complained of symptoms long before the weight of the uterus could exert any pressure on the external iliac vein or its tributaries. Five patients were between 20 and 25 years of age; eight patients were between 25 and 30 years; ten patients were between 30 and 35 years; and seven patients were between 35 and forty years.

It is also interesting to note

the time when the operations were performed. Five of the patients were operated within the first three months, four in the fourth month, nine in the fifth, five in the sixth month, one in the seventh month, and six, three to five days after delivery. Perhaps they should not be included but the veins of this group were followed during their pregnancies.

One patient had a high right saphenous ligation. Nineteen received a bilateral combined high saphenous and segmental ligation. Three patients had a right high saphenous and segmental ligation and three others were ligated on the left side. One patient had had a previous bilateral high saphenous ligation and it was only necessary to do segmental ligations. Three patients had a very radical high saphenous, segmental and vulvar ligation.

The author feels very definitely that the proper postoperative care is equally as important as a well-executed operation. The patients are

followed for a period of at least one year receiving injections of two cc. of sodium morrhuate to alternate legs at weekly intervals for eight weeks, and thereafter, every two or four weeks for the ensuing year. This varies according to the number of residual varices following the operation. Furthermore they are instructed to return for follow-up care through any future pregnancies. Three patients in this series have been followed through subsequent pregnancies. One delivered and required only three injections of sodium morrhuate during the entire period. Another had a miscarriage at three months and is now pregnant again. The third is now seven months' pregnant and has required but a few injections. There were no wound infections and the average hospital stay was 3.3 days. One patient had a few Braxton Hicks contractions several hours after the operation which were controlled by a hypodermic of morphine.

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